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ABSTRACT

This guide is intended for K-12 educators who are planning to implement videodisc technology into a school's educational curriculum. Teachers need expertise in two areas for the success of interactive video in schools. First, they need to be able to integrate videodisc materials into existing curricula. Second, they need skills for reviewing, evaluating, and selecting software and hardware. Chapter 1, "Background Information," addresses issues such as levels of interactivity; comparison of videodiscs; use of barcodes; and players controlled by computer. Topics that curriculum planners must address are the focus of chapter 2, "Issues in Planning and Selection," including instructional justification; teacher training; technical services support; sophistication of users; accountability; life-cycle costs; preview, evaluation, and selection; hardware; and videodisc instructional resources. Chapter 3, "Videodisc Applications," contains specific data to be used to determine curriculum fit by three different categories: system requirements, grade level, and subject area. Several pages of comments and speculation comprise chapter 4, "Future Implications." The guide ends with a conclusion, glossary, and an 18-page appendix providing a videodisc index by grade level. (MAS)

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K - 12 Planning Guide for Videodisc Usage

for teachers
and administrators

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K-12 Planning Guide for Videodisc Usage

for teachers and administrators

1995 Edition

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Emerging Technology Consultants Inc

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Abstract

The most significant instructional characteristics of videodisc technology are capacity and interactivity. Each side of a CAV disc has the capacity to store 54,000 still images, 30 minutes of full-motion video, or a combination of the two. Today's newer models of videodisc players have the capability of four audio tracks -- two analog and two digital. CLV discs can store one hour of full-motion video per side. Educators and students can quickly access specific information stored on these discs using a variety of players and input devices.

Three widely recognized levels of videodisc interactivity currently exist. Level I requires the user to locate and play designated segments of the videodisc. This process is usually accomplished by using a remote control keypad or barcode reader. Level II interactivity requires a special videodisc player, with a built-in microprocessor, and a special videodisc that contains a computer program stored on the second audio track. Based on the computer program and user input, the microprocessor mediates the presentation of information. Few instructional videodiscs in the K-12 setting use the Level III format. Level III requires that a computer be added to the delivery system. This level can significantly enhance the nature of the interactivity by providing additional instruction, guidance, feedback, record keeping and management. Adding a computer may increase purchasing costs and require that expertise be available to use the software programs appropriately for maximum value.

Decisions about the use of interactive videodisc should be based on instructional needs, teacher capabilities, technical support and cost. The cost category should consider software acquisition, teacher training, workstation furniture, security devices, hardware acquisition and maintenance, and replacement.

When determining the type and number of systems to purchase, one should consider the content areas to be served and the instructional materials available in those areas. Effective scheduling can often reduce the number of systems required and still provide students with a quality learning experience. A purchase decision should also consider the greater durability of industrial videodisc players compared to consumer players. Industrial players are designed to absorb the type of abuse sustained during frequent use and to offer features for classroom use.

Appropriate software purchases are critical to the effective use of any system. The following simple guidelines can assist the purchaser:

1) Obtain as much information as possible from reliable sources other than the software publisher.

2) Determine if the material is appropriate for the intended grade level, meets curriculum objectives, involves the student, is bias free and is current.

3) Request that the software be demonstrated to determine whether it adheres to the published claims and has acceptable quality.

Since the videodisc is essentially an information storage device, the grade level of the software is determined by student sophistication and teacher usage. When used creatively, the use of a videodisc actively engages students in different content area discussions.

Currently, most videodiscs are designed for Level I use; however, the number of Level III videodiscs has increased as computer and videodisc manufacturers are joined by software publishers in promoting this method of instruction. Analysis of a recent directory of educational videodiscs shows that more discs are available in science, language arts, health, and social science than in all other subject areas combined.

Teachers who use interactive videodiscs need skills in two major areas. First, teachers need to be able to integrate videodisc materials into existing curricula. This process may involve repurposing the videodisc material. Repurposing activities range from simply modifying the viewing sequence of instructional material to creating an entirely new lesson based on the content of a disc. Successful integration may also require that teachers use a greater variety of teaching and assessment strategies. Second, teachers need skills in manipulating the equipment. They should be comfortable connecting the various pieces of equipment (more complex with Level III systems), and manipulating the different input devices, such as the remote control keypad and barcode reader.

Videodiscs will continue to make significant impact on curricular activities during the 1990s. The quality of videodisc players and software has increased with little increase in cost. New technology, like Digital Video Interactive (DVI) and Compact Disc-Interactive (CD-I), will enhance the use of videodiscs. The technology will develop to the point that videodisc material will be networked. It is important that videodisc systems be purchased with the future in mind. The system should be able to play as much current material as possible and be flexible enough to accept additional features as they are developed.

Compatibility among educational videodisc hardware has been simplified because manufacturers provide compatible hardware across their systems in programming as well as barcoding.

Planning is the key to effective videodisc usage in the schools. The information that has been presented here should help many educators implement this innovative technology in today's schools.

To purchase additional copies of this guide contact:

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Introduction

Overview

This guide has been produced to assist K-12 educators who are planning to make greater use of videodisc players in their schools. Intended readers include: technology specialists, librarians, media specialists, teachers, principals, content area coordinators, superintendents, parents, and teacher aides. The guide provides background information, and a detailed Appendix.

While written with the novice in mind, the guide offers necessary background information for both the experienced and the less experienced. Readers are encouraged to study the Table of Contents in order to become familiar with these categories of information. Teachers may not want to spend as much time in the Planning and Selection section, and instead concentrate more on the Videodisc Applications section. Curriculum planners and technology coordinators will likely want to begin at the front and work through the entire document. Administrators may want to review only the Background Information and Future Implications sections. One suggestion for all readers is to quickly review the entire document, then go back and re-read the sections most pertinent to individual needs.

The Background Information section addresses topics of concern to many educators today. How long have videodiscs been available? What does "Level" mean? Which "Level" should I use? Do I need a barcode reader? Does the videodisc player need to be connected to a computer? These are a few questions that are addressed in this section.

Topics that curriculum planners must address are the focus of the Planning and Selection section. Most of the topics deal with the same instructional and educational variables that are present in any educational planning process. This section includes specific and generic information related to selecting and planning of videodisc usage. The purpose of this section is to encourage and facilitate planning processes.

The Videodisc Applications section contains specific data to be used to determine curriculum fit by three different categories: 1) System Requirements, 2) Grade Level, and 3) Subject Area. The Appendix includes a chart of information to support this section.

Several pages of comments and speculation complete the Future Implications section. The final section is a brief Conclusion, followed by the Glossary and Appendix.

Videodisc and multimedia technologies are changing rapidly. The information contained in this guide will become dated as these changes occur. In order to stay current and remain on top of new developments, readers are encouraged to establish and maintain contact with computer and videodisc manufacturers, their local, state and regional education support centers, videodisc and multimedia companies such as Emerging Technology Consultants Inc, publisher of the *Multimedia and Videodisc Compendium for education and training*, and educational technology publications.

Setting

Videodiscs are beginning to compete with textbooks as a vehicle for delivering subject matter content. For example, the Texas Education Agency has added videodisc materials to its approved state adoption list. With such adoptions, Texas schools will have the choice of presenting subject matter contained in a bound textbook and/or on a videodisc. The Florida State Department of Education has placed one videodisc player in each of the 2,300 public schools in the state. Furthermore, in a California textbook adoption at least 90% of the adopted textbooks are supported by videodiscs. Many other state and local educational agencies are following suit.

This change is impacting public education in at least two ways. First, textbook publishers are expanding and enhancing their listings to include videodisc options. Material more appropriately presented through videodisc technology can be made available to public schools. Materials traditionally treated as supplemental (for example, videotape segments, pictures, maps, audio recordings, etc.) can now be incorporated into a primary delivery vehicle.

Second, schools are being encouraged to purchase hardware (computer stations, networks and players) that can take advantage of the videodisc delivery system. Once available, these systems may also be used for other instructional and administrative purposes. Having this hardware available for use in the schools encourages publishers and authors to create a greater variety of videodisc material for classroom activities.

Chapter 1 Background Information

Historical Development of Interactive Videodisc

The use of interactive videodisc materials gives the viewer control over the sequence and duration of the information viewed. The interactive video industry began with simple machines that permitted the viewer to stop and start video segments. Slide and filmstrip projectors allowed the viewer to stop on particular frames, but the sequence was predetermined and possessed an inflexible viewing process. The user was required to advance through the entire collection to access a specific item. Random access was all but impossible.

Early attempts to develop interactive instruction used videotape players. The viewer, with a hand-held remote control, was able to fast forward, rewind or pause on a particular image. This slow and tedious technique required the viewer to search through the entire videotape to locate desired segments.

To expand the potential of interactive video, a fast random-access system was needed. Interactive video users began to experiment with using discs as storage devices. The disc format, unlike that of videotape, allowed for immediate access to information. By the 1980s, videodisc storage technology had become practical. Videodiscs were produced in 8- or 12-inch platters. The larger size served as storage for up to 54,000 still images or 30 minutes of full-motion video with two 30 minute audio tracks. Most players today have up to four audio tracks: two digital and two analog.

Videodiscs are produced in two common formats: CAV (Constant Angular Velocity) and CLV (Constant Linear Velocity). CAV discs store one video image on each concentric ring. This format permits fast and easy frame-accurate addressing, a characteristic necessary for developing interactive materials. CLV format encodes information in a spiral pattern. This format allows twice as much information or images to be stored on a videodisc. CLV is an excellent format for long-playing video, such as documentaries, but is much less desirable for interactive instruction. The CLV videodisc's spiral pattern takes a considerably longer time to locate individual frames. Furthermore, only more expensive industrial players can represent single frames in CLV format.

The sophistication of a videodisc system determines the ways in which it can be used. Level I is a simple system, which consists of a videodisc player, remote control keypad or a barcode reader, and a 20" - 25" monitor. It requires that the user mediate the presentation by interacting with the player through the keypad remote control or barcode reader. This system configuration can be relatively inexpensive, with prices starting around $1,100. A Level II system has a built-in microprocessor and can be used, as described in the abstract, to deliver instruction from Level II discs. The player reads a digital program encoded on the videodisc and allows the user to branch to different parts of the program. Such systems usually cost about $2,500. Computer-driven systems, Level III, are fully interactive. They combine the storage capability of the videodisc with the management and record-keeping capability of an external computer. Using a computer to manage the interaction may require additional memory, graphic resolution and additional input/output devices. This system costs between $2,000 and $10,000, depending on the computer system.

There are three major videodisc player manufacturers. They are Pioneer New Media Technologies, Inc., Sony Education Systems Division and Panasonic Broadcast & Television Systems Company. A brief chart comparing educational-oriented models follows.

Videodisc Player Comparison

Common Features

Videodisc players currently available can access up to four audio tracks, play both CLV and CAV formats, and operate by a keypad remote control and a barcode reader. Additionally, most industrial players used in educational settings are computer compatible.

Use Table 1 to compare features among the various educational videodisc players currently available. For further information, contact a videodisc player dealer. Although consumer players are becoming available in popular audio/video stores, they are really not suited for educational use. Most consumer models are not barcode or computer compatible and are not structurally designed for commercial use.

Table 1: Videodisc Player Features

Models/ Features	Pioneer CLD-V2400	Pioneer CLD-V2600	Pioneer LD-V4400	Pioneer LD-V8000	Panasonic AG-LD30	Sony MDP-1700AR
Level of Play	I, III	I, III	I, III	I, II, III	I, III	I, III
Computer Connections	RS-232 Interface	RS-232 Interface	RS-232 Interface	RS-232 Interface	RS-232 Interface	RS-232 Interface
Video Terminals	RF (TV) or Monitor	RF (TV) or Monitor	Monitor Only	Monitor Only	RF (TV) or Monitor	RF (TV) or Monitor
Search Time	5 seconds	4.2 seconds	1 second (after initialization)	.5 second	12 seconds	6 seconds
Type of Remote Control	wireless RU-V103 included	wireless RU-V103 included	wireless RU-V103 optional	RU-V6000 or RU-V103 optional	wireless LY-B155T included	wireless RMT-M23A included
Text Overlay Capacity	Yes (10 lines x 20 char.)	Yes (12 lines x 20 char.)	Yes (12 lines x 20 char.)	Yes (12 lines x 20 char.)	No	Yes (12 lines x 20 char.)
Front Panel L.E.D. Display	None	Chapter, Frame	None	None	Chapter, Frame	Side A/B
Audio Channels	2 - Analog 2 - Digital	2 - Analog 2 - Digital	2 - Analog 2 - Digital	2 - Analog 2 - Digital	2 - Analog 2 - Digital	2 - Analog 2 - Digital
Plays CD-Audio	Yes	Yes	No	No	Yes	Yes
Barcode Standard	LB_2	LB_2	LB_2	LB_2	LB_2	LB_2
List Price	$975	$995	$1,495	$2,595	$935	$940

Levels of Interactivity

Recently many authors have redefined degrees of interactivity, creating as many as six levels, some including decimals. These new definitions add little practical value. As a result, this document uses the original designations of Level I, II and III.

Levels of interactivity refer to the methods by which instructional materials are mediated and the degree to which they engage the learner in processing the content being presented. Level I applications place the greatest demand on the user for mediating the presentation and provide the least pre-planned interaction with the content. Level II software uses a computer program stored on the second audio track to mediate the content presentation. The user is required to interact with the software by using the remote control. Level III instruction uses an external computer to control the videodisc player, present opportunities for interaction, and monitor student performance.

Level I

Level I interactivity is generally viewed as the most passive in terms of learner involvement. The user interacts with the player through the use of front panel controls, a remote keypad, or a barcode reader. The learner or teacher uses the remote or barcode reader to select and display the relevant material on the videodisc. To make this process easier, many videodiscs come with a topical index or a sequence of instructional activities. The teacher or student need only identify the relevant material and enter/scan the appropriate code to view the material.

Level II

Level II software uses a computer program stored on the second audio track to mediate the content presentation. This level requires a player with a special built-in microprocessor designed for this purpose. The user interacts with the software by using the remote to respond to questions or make selections. Level II is almost exclusively used in corporate training, consumer sales, and kiosk applications where no teacher is available, limited interactions are required and no record keeping is necessary. The built-in computer used in a Level II player is not available for other general purpose computing activities.

Level III

To create Level III interactivity, a computer must be connected to the videodisc player. Adding a computer to the system may increase the cost of the station and, if not used properly, may reduce its portability. However, the computer increases the flexibility of equipment and courseware. Well designed Level III instruction increases interactivity to its highest level. Any computer input device (such as a mouse, touch screen, light pen, or keyboard) can be used to respond to questions or make selections. In addition, detailed student records can be kept and sophisticated management systems implemented.

Note: There is no difference between Level I CAV and Level III CAV videodiscs. However, to operate at Level III, the instruction must be controlled by an external computer. A number of commercially available videodisc products are sold as combination Level I and Level III packages. For example, the *On Dry Land: The Desert Biome* videodisc from The Discovery Interactive Library contains a barcoded index that allows the disc to be used in a Level I configuration. In a Level III configuration, specifically designed Macintosh or IBM software allows the user to access material on the videodisc.

Use of Barcode Readers

Borrowing from technology developed for business applications, videodisc producers are creating curriculum materials that use barcoded instructions to provide interactivity. The system mimics the inventory and pricing systems first used in warehouses and now commonly found in retail outlets. By moving a barcode reader, often resembling a large pen, across a barcode strip, the user passes information to the videodisc player. Barcode commands can initiate frame searches to locate individual pictures or begin motion and audio sequences. Some barcode systems are capable of providing all aspects of playback control, including single-frame advance, pause, and audio selection — all with the use of the scanner pen. Barcode readers are available both as infrared (wireless remote) and wired units.

Barcode systems are well-suited for classroom instruction. They can be used to quickly access still images, video or audio segments of a videodisc or a CD audio disc. Barcodes can be embedded in a teacher's lecture notes or student materials so that an image or video sequence can be used to illustrate a point. When a barcode appears in the text of the instructional materials, the user scans the code by passing the barcode reader over it. The scanner then functions as a remote control device and sends the command to the player.

For example, when a student reads about wild animals in Texas and "armadillo" is introduced, a barcode is located conveniently in the margin. By passing the barcode reader over the code, the student can access and view a video sequence in a matter of seconds. In the next paragraph, as students read about where the armadillo sleeps, another barcode provides access to a video on the animal's living quarters.

Another popular use of barcodes permits the retrieval of video information from videodisc-based encyclopedias or picture files. Teachers and students can access information for media presentations or as aids to verbal presentations. A teacher might assign a project such as a report on Martin Luther King. Using the index for a video encyclopedia,

students find segments of Dr. King speaking, marching and making television appearances. They might also locate interviews with other historical figures who talk about Dr. King. Each item in the index has a barcode, which when scanned, allows students to review that segment. Students keep a list, in order of presentation and by the barcode for that unit, of all the material they want to include in their presentation. If the appropriate rights are provided or permission is given by the videodisc publisher, students can connect a video recorder to make a copy of the presentation to showcase in other classes or to bring home. Each code can be scanned in order, and the videodisc information can be transferred from various locations on the videodisc to the video tape — exactly as the user wants it organized for the visual report. The videotaped report may then be played in a classroom setting.

Another barcode application is available by purchasing barcode making software. Using your computer hardware, you can use this type of software to design and print barcodes on labels or printer paper. Teachers or students place barcoded labels into existing classroom textbooks or other written materials. In order to create the barcode, the user first reads the appropriate textual information, locates an appropriate visual on an existing videodisc, creates a barcode that will access that image, and then places the label on the margin next to the text.

The number of barcoded materials for K-12 education has been steadily growing. Approximately 70% of the 1,529 K-12 videodisc titles have barcoded instructional materials. Major videodisc player manufacturers have licensed Pioneer's LB and LB_2 barcoding technology standards. Since all videodisc players conform to these standards, a school's investment in barcoded instructional materials is protected. In general, barcoded materials will operate on any barcode-compatible player.

Videodisc Players Controlled By Computer

By adding an external computer to the videodisc player, schools have the potential to enhance interactivity, record keeping, and management. An example of a videodisc system controlled by a computer is the *Physical Science* program produced by the Texas Learning Technology Group.

Adding a computer to a videodisc system makes individualized instruction a practical possibility. Individualization means that students receive instruction specifically suited to their needs. Students can choose to study the content information in a unique manner, work at their own pace, or take advantage of remedial or enrichment activities. Additionally, the teacher can use the software's record keeping and management features to monitor and control student progress and to maximize learning.

Chapter 2 Issues in Planning and Selection

Decisions about which level of interactivity is appropriate in an educational setting should be based on instructional concerns, teacher capabilities, technical support services, and cost considerations.

Instructional Justification

Planning is the key to the effective use of interactive videodisc technology in an instructional environment. Whenever new material is made available for classroom instruction, successful teachers identify how it can be integrated into the curriculum to make the greatest impact.

Making decisions about the relationship of a videodisc's content to the existing curriculum is the first step toward integration. Videodiscs should be identified that contain a substantial amount of relevant material and do not require the instructor to significantly modify his/her instructional content. Care should be taken to avoid selecting videodiscs to teach content best presented through some other technology. Videodiscs are most appropriate for integration into the curriculum when access to visual and auditory information is essential to efficient and effective learning. Using electronic media does not eliminate the need for written materials, but enhances the opportunity for the development of oral and written communication skills.

The instructional format will also influence the appropriate use of videodiscs and the required delivery system. In large-group presentations, videodisc materials can provide graphics and illustrations. In this context a Level I, or Level I with barcode capability, interactive system may be sufficient. For small-group activities, each workstation will need to be equipped with a copy of the videodisc. If the groups are working on different components of the material, preprogrammed activities will be needed. Level III provides the greatest flexibility to use different presentations and instructional strategies.

If the system is to be used in different subject matter areas, scheduling equipment becomes an issue. Enough players should be available in a school or district to substantiate an investment in videodisc materials. Provisions should be made to transport the equipment between classrooms in the school. Priorities for using the equipment also will need to be established. Decisions must be made on the relative importance of a videodisc-enhanced learning activity.

The needs of subgroups of students are a consideration, particularly if core material is being taught in a language other than English. It may be appropriate for these students to have priority use of a videodisc system.

As with any educational material, the value of videodisc material and its appropriateness for the target students' needs should be determined. Not all videodiscs will contain the right balance of subject matter or present it in an appropriate manner. Content analysis will help the teacher determine if students have the necessary prerequisite skills to understand the videodisc material. In many cases, the visual material may be appropriate in a broader age range than indicated by the videodisc publisher. Support materials also may be targeted to a narrower level based on vocabulary and required skills.

Teacher Training

The general level of sophistication of K-12 teachers with respect to classroom applications of interactive video is low. Historically, K-12 teachers have not been prepared through their undergraduate teacher training to use interactive video materials. One reason is that states differ in their certification requirements. In some states, certification for K-12 teachers requires them to receive instruction or demonstrate competence in using instructional technology. This training typically includes a component on interactive video materials. Most states do not have such requirements. To overcome this limitation, school districts often provide in-service training when they have adopted specific interactive video curricular materials.

To enhance teachers' knowledge and skills in using interactive video, teacher training should include two broad categories of competencies. The first category includes integrating interactive video materials within the curriculum. The required teacher skills in this area vary with the nature of the curriculum and the nature of the materials. The second category of competencies includes the manipulative skills required to operate the equipment. Because teachers are required to manipulate the technology and to train students in its operation, they need training and practice opportunities that will develop their skill and confidence.

Curricular Skills

Videodisc-based instruction can be implemented in a variety of settings. The instructional strategies and techniques teachers may use when implementing interactive video instruction are relatively independent of the sophistication of the software. Teachers must employ cooperative learning strategies to enable students to work effectively in small group settings that are frequently associated with videodisc applications. They need to develop the planning skills necessary for scheduling the required equipment. Some teachers will require assistance in

relocating classroom furniture to provide access to the equipment without disrupting other classroom activities.

To effectively use the technology, teachers need to rethink assessment techniques. When instruction takes place in a paper and pencil environment, paper and pencil testing is a natural learning assessment technique. When information is presented in non-traditional forms, traditional paper and pencil testing may provide an inaccurate measure of the learning that has occurred.

For example, a student who has learned to identify the internal organs of a frog by studying a video image of a frog may be at a disadvantage when asked to label a black and white line drawing of the internal organs of a frog on a paper and pencil test. The student who has learned to identify the frog's organs from studying a paper and pencil diagram will have the advantage. If both students are tested by having them identify the organs from a full-color videodisc image, the results may well be reversed. Teachers' training in assessment will increase the likelihood that the skills they test are the same as the skills they teach.

An additional skill that should be considered is the ability to repurpose videodisc materials. Repurposing is the process of using the videodisc in a manner for which it was not originally intended. For example, a NASA videodisc on early space flights could be used to demonstrate selected physics topics, or to introduce students to major historical events such as the first moon landing. Repurposing for these activities might be as simple as using the remote unit to access only selected sequences during a lecture, or as complex as creating a software product that accesses the selected video as students work through a computer-based lesson. The sophistication of the repurposed lesson will be determined by the hardware system on which it will be delivered, complexity of the material to be accessed (combination of still images, motion video, and audio), time available to develop the instruction, teacher's authoring skill, and the perceived value and usefulness of the instruction.

Manipulative Skills

The manipulative skills required for a teacher to successfully implement interactive video materials in the classroom depend upon the level of sophistication of the interactive video materials. At the very least, teachers should be able to verify correct cable connections on a system already set up.

Level I Skills

Level I systems include a videodisc player, a video monitor, keypad, or a barcode reader. Cable connections should be checked before class. Connecting the cables between a videodisc player and monitor is as simple as connecting a television to a video tape recorder. A Level I configuration requires a connection between the videodisc player and the

monitor. The barcode reader or keypad may be used to access the videodisc player either by infrared remote control or a wire hookup.

Used as a classroom presentation system, Level I interactive video systems are controlled by either a keypad or a barcode reader. Accessing videodisc information with a keypad requires a series of between 4 and 7 keystrokes (depending on the model of videodisc player and the nature of the search). Performing basic chapter access with a keypad is a reasonable activity for a classroom teacher or student to perform in a classroom. When accessing freeze frame material, the keypad becomes cumbersome if more than a few visuals are used.

Accessing videodisc information with a barcode reader simplifies the process. A stroke of the barcode wand replaces a series of keypad button presses. Practice on the part of the user is suggested to move the wand at an appropriate speed and angle for reliable operation. Before mastering the skill, the teacher or student may need to practice scanning the barcode control commands. It is important to provide appropriate training and practice time to ensure that teachers have a positive experience with the technology.

The audio tracks contained on each videodisc have two advantages. First, they are able to accommodate students who are learning a second language or need primary instruction in a native language. The dual language capability as a tool to learn languages has great potential; it permits students to hear both a native language and the target language in quick succession. Similarly, non-English speaking students can gradually learn English without falling behind in the content information. Second, the audio tracks permit a separate set of audio information to be presented with the same set of visuals. This track allows remedial, enrichment, and teacher-focussed information to be heard on the same videodisc.

Level II Skills

Level II system configurations are identical to Level I configurations. The only differences are in the internal design of the videodisc player and the operation of its software. With Level II software, each interaction is usually limited to a single keypress. The same skills are required to establish and maintain both systems.

Level III Skills

Level III systems are comprised of a videodisc player, an external computer and monitor (which may, in turn, include a keyboard and mouse), and, in most cases, a second video monitor. A teacher or support person should verify the correct connections of cables before the class presentation.

A Level III configuration potentially requires the following connections (although the first three may already be done for the external computer):

- mouse to CPU (Central Processing Unit) or keyboard
- keyboard to CPU
- CPU to computer monitor
- videodisc player to video monitor (or computer)
- CPU (or monitor) to videodisc player (usually an RS-232C cable).

Input devices, i.e. a touchscreen, may require additional connections. Skills gained with one system are not necessarily transferable to other systems since so many different configurations are possible. For example, in some configurations the video output of the videodisc player is routed directly to the video monitor, while in others the video output is routed into the computer for display on the same screen as the computer output.

To guarantee appropriate usage of a Level III configuration, it is helpful to provide K-12 classroom teachers with technical support. Labeling connecting points and cables for easy assembly is also a good idea.

When used as a presentation system in front of a classroom, Level III interactive video systems are typically controlled by a touchscreen, mouse, or computer keyboard. With proper training, a classroom teacher can expect a high-level of performance reliability when controlling a videodisc player from an external computer.

Keep in mind that Level III set-up procedures make it impractical to require teachers to quickly assemble systems when they wish to use them. Similarly, it is not reasonable to assume that a videodisc player should be moved from room to room and connected to different computers in each room to provide interactive video services. A more appropriate solution is to establish a system that is left intact in a location or on a mobile cart where it can be accessed by teachers and students.

Technical Support Services

To encourage teachers to embrace videodisc technology, schools must commit to strong technical support. This support should be directed toward making an easy-to-use and manageable technology interface.

Level I systems are relatively simple to operate and there is very little need for technical support, other than for basic set-up for novices.

The sheer number of cables and connectors on a Level III system suggest the need for technical support for setting up this configuration. Also, each videodisc manufacturer uses its own set of control codes and drivers

within its product line. These codes and drivers allow a computer to access specific videodisc images. It is important that the appropriate driver is installed on a Level III system computer. The installation of computer software can also present a challenge. Software products often require that the system configuration be specified before the software will function properly.

Many videodisc players include DIP switches to select control codes and RS-232C communications parameters. Although the RS-232C signaling system is highly reliable, there is no such thing as a "standard" RS-232C interface cable. Videodisc player manufacturers address this issue by selling preconfigured cable sets and/or by providing wiring diagrams for technicians to create such cables. An additional concern for users is that the cable that connects one manufacturer's videodisc player to a particular computer is probably different from the cable used by another manufacturer to connect its player to the same computer. Strong technical support is needed to clearly label and manage cables. Without such support, users run the risk of experiencing untold frustration when trying to reconfigure equipment.

Sophistication of Users

A teacher's level of sophistication determines his/her ease of using different videodisc player systems. The more experience a teacher has with computers, the easier it is to use videodisc players with built-in computer capabilities. To use a Level I system, a teacher does not require the same level of sophistication as to use a Level III system. However, some training is required to acquaint teachers with the use and creation of barcoded instructional materials.

Users familiar with computer-based instruction quickly and easily become familiar with the use of Level III systems. Touchscreen, mouse, and keyboard interfaces are highly reliable, as is the communication between the CPU and the videodisc player. The actions required by a user — touching, pointing, typing — are consistent with the actions required by a user in any form of computer-assisted instruction. With the possible exception of needing to load a videodisc in the player, the operation of this system should not require any training beyond that needed for other computer-based instruction.

Accountability

Accountability is a frequently mentioned concept in K-12 education. Level I interactive materials inherently lack any means for tracking, recording or reporting on student performance. All accountability should therefore be determined through activities and tests external to the

videodisc-based program. At the other extreme, Level III interactive materials are fully capable of recording the information and monitoring student learning. Unfortunately, only a portion of the currently available software programs provide on-line student management systems. As communities expect increased justification for the funds expended on technology-based instructional strategies, management systems will be used more fully.

Life-Cycle Costs

School districts should carefully examine the concept of "life-cycle costs" when purchasing videodisc hardware. Life-cycle costs include purchase price, maintenance costs, and staff training. Each of these areas is equally important in assuring the maximum benefit from an investment. Inappropriate or poor quality equipment will not be used or will fail to operate as needed. If maintenance is inadequate, the life of the equipment will be shortened. And, without proper training and support, few teachers will use the technology.

Other factors to weigh in considering life-cycle costs are:

1) technical staff needed
2) teacher training
3) the cost differential of players with different capabilities.

Preview, Evaluation and Selection

The decision to acquire videodisc delivery systems and curriculum materials is a significant one for school personnel. The impact on staffing, teaching styles, student attitudes, learning outcomes, and budget can be formidable. Once the decision to integrate this technology is made, it is essential to follow a systematic process for previewing, evaluating, and selecting the hardware and software.

Hardware

Although it is common for schools to purchase and begin using videodisc equipment with little planning, this approach is not recommended. Poor planning can result in significant long-term problems. In addition to carefully selecting the proper videodisc player, the planning process should include examining related areas: monitors, cables, adapters, computers, videoboards, furniture, placement of the equipment, and lighting.

One approach to planning is to designate a team of qualified personnel who can guide the district toward the path promising the greatest success.

The team should include staff with technical expertise and content or subject decision-makers. Technical help, to assist in the planning process, can often be found at area colleges and businesses. They are more than willing to provide this valuable assistance.

Purchasing decisions should be based on more than just the materials provided by the manufacturer and sales representatives. While this material may provide good information, it is skewed to emphasize the strengths of a system. Relying exclusively on these materials makes it easy to overlook important elements that might affect a particular situation. For example, a few obvious differences are apparent between industrial and consumer grade machines. The strength of the drive motors may be difficult to evaluate. The heavier duty motors on most industrial grade machines are vital for the heavy use encountered in libraries and classrooms. Better motors also can help create systems with shorter information access times. Stronger, better motors are likely to last longer and present fewer maintenance concerns.

The planning process should also examine how furniture selection, classroom design and player configuration will impact on each other. Placing a videodisc system in an area that will maximize its use may require special cables, installing new power outlets, specialized workstation furniture, and an equipment security system.

Similarly, the type of security a system requires depends upon the placement of the system, the quality and type of workstation in which it is housed, and the overall building security. A heavy lock, for example, may not be needed if building security is already high, or it may be useless if someone can easily pry the system loose from the furniture to which it is fastened.

One other general concern is selecting a proper monitor. A dedicated monitor (versus sharing with a VCR) is highly recommended. Different teaching styles require different size monitors. A 20"-25" screen is recommended for large-group instruction, but a 13"-15" monitor is preferred for individual or small-group use.

Videodisc Instructional Resources

Most instructional videodisc materials used by teachers are "off-the-shelf" packages. The quality of these packages varies greatly. Even high-quality programs can be useless if they do not match curriculum needs and student skill levels. The guides provided by the videodisc software vendors can be useful, but further information is helpful before purchases are made. The first level of review can be conducted in the library. Many publications offer regular reviews of software. In addition, there are

resource guides and vendor catalogs that present information on available videodisc materials for given subjects and grade levels. These sources should be used to create a list of possible purchases. However, be sure to take into account the information source since independent guides and reviews may be more reliable than vendor descriptions.

The next step is personal evaluation. The only way to guarantee the quality and content of a product is to see it yourself. Many publishers offer a preview program for prospective buyers. If not, perhaps a sales representative will bring the product to the school for evaluation. Be sure to evaluate "hands-on" rather than as an observer. This type of evaluation is especially true for Level III interactive programs. Make sure that the software will do what you want it to do on your hardware configuration.

Instructional needs, teaching styles, and system constraints are three areas that should be considered when deciding what software to purchase. Products that fail to satisfactorily address each of these areas are likely to get little use.

A content evaluation should determine if a match exists between curriculum needs and the information presented in the lesson. The evaluator should then explore the quality and value of the entire instructional package. The following questions may help with this evaluation:

- Does the grade level match the content? (reading level/ vocabulary)
- Do the software's stated objectives match those established by curriculum guides?
- Does the instruction address the goals and objectives on which the students will be tested?
- Is the level of the presentation appropriate for the students who will be using it?
- Is the material designed to be a primary or supplemental treatment of the content?
- Will the presentation motivate learners? Is it interesting?
- Are all the facts correct and up to date?
- Is the technical quality acceptable (sound/video/still image/text)?
- Are the materials free of unacceptable bias?

Once the appropriateness of the content has been verified, a match between the teaching style of the software and the teacher(s) who will be using it must be established. Unless the classroom teacher believes the product will enhance his/her students' learning, it will not be used. Issues that need to be considered are:

- Is the software designed for individual, small-group, or large-group use?
- What role does the teacher assume during the instruction?
- Is the software designed to be used within the time constraints of the classroom schedule?
- Is there a reasonable learning curve?
- What benefits will be gained by integrating the software?
- Does the videodisc promote interactivity?
- Is a software management system needed for easy access and use?
- Is the material meant to teach an idea, lesson, unit, course, or complete curriculum?
- Is the material bilingual? If so, which languages?
- Is the material generic enough to serve as a supplement to topics and/or audiences beyond the target audience?

If videodiscs are adopted at the school or district level, an effort should be made to assist teachers in embracing the products as well. Involving teachers in the software selection process, providing hands-on training, and employing a resource person to assist with the integration of software can help in establishing a successful integration of videodisc technology.

Finally, a match between the hardware requirements of the software being considered and the configuration of the systems in the school must be determined. Unfortunately, this is often the first consideration in many selection processes and, as a result, high-quality Level III products are overlooked. The cost of upgrading to a Level III system can be little more than designating a previously owned computer system for Level III usage.

In determining if your system will support a product, consider the following:

- Is a special input device (e.g., touch screen, mouse, barcode reader) required?
- Does the software operate at Level II? (This level requires a special player with a built-in microprocessor.)

- Does the system operate at Level III? If so, what type of computer must be interfaced to the player?

- What support services are offered? Will the company provide inservice training?

If a hardware modification is necessary, the cost of the modification should be compared to the instructional benefit offered by the software. The comparison will help to determine if the purchase is justified.

Finally, determine if the producer can provide evidence of the effectiveness of the product. Are there field tests for review? Attempt to contact peers who have used the product in an environment similar to yours. Ask them what works and what doesn't, what special features improve learning and which ones "get in the way."

Following the suggestions listed above does not guarantee a perfect match between product and classroom goals, but it should eliminate purchasing bad products. The time spent in selection can save future frustration and disappointment.

When decisions have been made and programs implemented, perform an evaluation to determine the ultimate success of the decision. This information is not meant to make you feel good or bad, but rather to provide data for use during the next review. What went as planned and what didn't? What instructional strengths and weaknesses were identified? How is the videodisc being used? What are the reactions of teachers, media specialists, administrators, and students to the product?

It is highly recommended that any evaluation of materials be documented and stored for others to access, since previewing and evaluation are both time-consuming. One suggestion for maintaining product reviews is to designate the media person as the keeper of the records. Regardless of who keeps the reviews, care should be taken to record exactly what was reviewed, when, and by whom.

Chapter 3 Videodisc Applications

The level of interactivity in videodisc systems is determined by the hardware configuration used. Both Level I and Level III interactive systems have unique characteristics that make them useful in many educational environments.

Level of Usage

Level I systems are the least expensive and offer a high level of interaction with learners. With the assistance of a keypad remote control or barcode reader, a teacher can actively engage students in videodisc-oriented instruction. Level I systems are easy to operate and can be used effectively to present content area material. With the added computer system, Level III systems have the capability to engage students at many levels, record performance, and manage student progress through a curriculum.

Since a videodisc is a storage device, it can be used as a library resource, providing access to audio and video information. Although this process can be accomplished with Level I systems, it is more efficient to use a Level III system with some grade levels and content areas. Level III systems provide computer software to sort and select data that meets specified requirements.

One of the most common uses of videodisc technology is as lecture support. With a Level III system, the teacher can program the computer to automatically perform specific functions, displaying preselected information as needed. With a Level I system, the teacher must manually access sections of the videodisc using a keypad remote control or barcode reader.

Students can use videodiscs as a research resource, to review material presented in class or from a text, or to learn new material. Level I, Level I with barcode, and Level III systems can be effective in meeting these instructional needs.

Videodiscs can also be used by students to prepare and deliver reports. After the appropriate information has been identified and catalogued, students can prepare and present well-researched, dynamic reports using either Level I or Level III technology, depending on what technology is available and appropriate.

The *Multimedia and Videodisc Compendium for education and training** lists videodisc titles by subject. The following table, based on information on K-12 videodiscs contained in this resource, shows a comparison of levels. A review of the table shows 85.5% of the videodiscs are Level I compatible and 23.6% are Level III compatible.

Table 2: Videodisc Level Data

Level	Percent	Number
Level I (CLV)	8.2	126
Level I (CAV)	66.8	1021
Level I/III (CAV)	9.8	150
Level I (CAV/CLV)	.7	11
Level II (CAV)	.7	11
Level II/III (CAV)	.3	5
Level III (CAV)	13.4	205

Note: Some videodiscs were specified as being of two different levels.

Just as teachers need training if they are to effectively use this technology, so do students. The amount of training depends on the ways in which students will be using the equipment. Students who will be using systems only as learners will require a minimum amount of training to prepare them to interact with the lesson content. Those students who will prepare reports or instructional materials for use by other students will need the same level of training as their teachers require. Adequate training will reduce questions, problems, and damage while increasing the use of the equipment and the resulting learning.

Subject

The number of videodiscs available is steadily growing and educators are being offered an ever-expanding list of subject areas. One of the nation's leading resources lists over 3,200 titles in 39 key subject areas. In the K-12 environment, 1,529 videodisc titles are listed in 18 categories. The number of K-12 videodiscs is still increasing as evidenced by the continuing increase in the number of titles.

A review of the 1,529 titles for K-12 presents a clear picture of the emphasis on science. The 455 entries in that subject area comprise over a

*Emerging Technology Consultants Inc. (1995). *Multimedia and Videodisc Compendium for education and training*. St. Paul, MN 55113. 612/639-3973.

fourth of the entire collection. The areas of science, language arts, health, and social science combined make up 68.1% of the listings. The foreign language titles have grown from four to over 75 in five years. The dual audio track capability of videodiscs is ideal for presenting visual material in both the primary language and the acquired language.

While the percent increase in the number of math titles is small, the addition of 16 videodisc titles in math is noteworthy. The following table presents a breakdown of available videodisc materials according to subject.

Table 3: Subject Matter Data

Subject	Percent	Number
Art	4.7	72
Business	0.7	10
Career Guidance	2.2	33
Classic and Contemporary Film	2.0	30
Electronics	5.4	83
Foreign Language	5.0	76
Health Topics	10.0	153
Language Arts	11.2	172
Mathematics	6.1	94
Music	3.2	49
Science	29.8	455
Social Sciences	17.3	262
Trade & Industry	1.4	32
Miscellaneous	0.5	8
Total Titles		**1,529**

Chapter 4 Future Implications

The future holds many possibilities. Of course, what will happen will be strongly influenced by the installed base, school finances, and the creative efforts of videodisc users.

What Do We Know?

Over the past decade, the sophistication of videodisc players has increased with little increase in price. The cost of the present generation of videodisc players is competitive with that of videotape recorders of similar quality. Increased applications of videodisc players in the schools should provide even more attractive pricing. In any event, it is unlikely that the future cost of videodisc players will increase significantly.

The videodisc itself, as a physical medium, has excellent advantages over videotape. Stored and handled with ordinary care, videodiscs have unlimited potential for continued use. The image quality is also maintained throughout its use.

What May We Speculate About Videodiscs?

The 12" analog videodisc is likely to be joined soon by other delivery systems for the storage of audio and video materials. DVI (Digital Video Interactive) will become an important means of the delivery of materials, in applications where the ability to easily update information is important. In terms of absolute quality of the video image, none of the emerging technologies, including DVI and CD-I (Compact Disc Interactive), can currently compete with videodiscs. Although DVI and, to a lesser extent, CD-I have potential to displace the analog videodisc in some applications, the videodisc will remain the dominant delivery vehicle for instructional systems where close analysis of a high-quality video image is vital to the instruction.

In the future, we may see interestingly advanced integration of videodisc and DVI technologies. For example, one limitation of present videodisc systems is the inability to function over networks. In the future, we may be using a videodisc network, using combinations of individual videodisc players and videodisc jukeboxes to store and access video. Images would be digitized "on-the-fly" through the use of DVI or other video compression technologies. The images would then be distributed across a high-speed data network and decompressed at the user's workstation.

What Should Be?

Videodisc systems and software are priced competitively with the older technologies (e.g., videotape and 16 mm film) that many schools use. Videodiscs, however, are easier to handle, more durable, easier to transport and store, and offer a wider range of use. Therefore, new purchases should be directed toward videodisc-based delivery systems.

What is Likely?

Schools are competitively shopping for videodisc players and videodiscs. When considering a purchase, it is important to consider future usage. Although the cost of a Level I player is somewhat lower than a Level III player, the Level III player provides greater flexibility in implementing videodisc-enhanced instructional materials.

If you presently have a supply of Level I players available to teachers, but your curriculum lends itself to Level III players, consider repurposing Level I players. Level I instruction can lend itself to classroom teachers who would not otherwise have technology available to them. For example, place a player in the kindergarten classroom, art studio or music lab. There are many Level I titles for use in specific content areas for primary grades.

By carefully considering the information contained in this publication, educators will be able to avoid hasty decisions to buy the cheapest or oldest technology available. Buying inexpensive players is not necessarily a bad decision, but doing so without considering district goals, curriculum compatibility, and available software can lead to inefficient use of school funds.

Chapter 5 Conclusion

Through the 1990s, videodiscs will continue to make significant impact on curricular activities. New technology, like DV-I and CD-I, and combination videodisc/compact disc devices will enhance the use of videodiscs and then begin to replace them in specific areas. The technology will develop to the point that we will be able to network videodisc material. It is important that videodisc systems be purchased with the future in mind. They should be able to play as much current material as possible and be flexible enough to accept additional features as they are developed. The key to current and future effective videodisc usage in schools is planning.

Two events have occurred during the past year, which enhance the viability of videodisc usage in the K-12 environment. First, companies, including those with vast film libraries, are developing new products that take advantage of videodisc technology. They are modifying materials for both Level I barcoded usage and for Level III, and they are creating new materials. Second, there has been a dramatic trend towards lower prices of videodiscs, even for products with Level III support. These two developments should have a positive impact on the continued viability of videodisc technology for K-12 usage.

Glossary

Analog Information which is conveyed by a continuously varying current or frequency such as a video picture or an audio signal. Traditional audio cassettes, video cassettes, and videodiscs are analog recordings.

Barcode Reader A handheld tool that allows the user to access frame, chapter or time locations, step, scan or search by reading printed barcodes. It is usually used in conjunction with a textbook or other printed material to create custom lesson plans and instant access to locations on the videodisc.

Blinkless Search Some videodisc players permit a specified search that occurs without making the screen go blank.

CAV (Constant Angular Velocity) The CAV videodisc contains 54,000 individually addressable still frames. At the standard rate of 30 frames per second, each side of a CAV videodisc contains 30 minutes of video material.

CD-ROM (Compact Disc-Read Only Memory) A variation on Audio CD technology, the CD-ROM provides more than 660 mb of data storage. By itself it offers nothing more than a magnetic disc drive. However, its relatively low cost and transportability make it an important enabling technology for the distribution of vast amounts of computer data. Used in combination with DVI, it can provide up to 72 minutes of full-motion video.

CLV (Constant Linear Velocity) The CLV videodisc holds 60 minutes of video on each side. In this format, the disc is not addressable by frames. However, it can be addressed by time or chapter.

Chapter A sequence of videodisc frames that can be addressed with a two-digit code. It provides rapid access to major divisions within a videodisc and works equally well with CAV and CLV videodiscs.

Digital Information which is generated or transferred by use of a pattern of fixed values, usually 0 and 1. Digital information is computer readable and can be logically manipulated by the computer.

DIP Switch A set of small toggle, or function, switches that can be set to "on" or "off." The number of switches will vary depending upon the device that they are controlling.

DVI (Digital Video Interactive) A video compression system that allows real-time compression and decompression and display of digital graphics and full-motion video with audio. The DVI format is capable of up to 72 minutes of full-screen video, sound, and thousands of still images.

Interactive Video	Video stored and retrieved in an order other than the order it was recorded on the tape or videodisc.
Interface Cable	The cable that connects a computer to a videodisc player, permitting the computer to control the player.
Level I	Interactive video that allows the user to retrieve videodisc material through the use of a keypad or barcode reader.
Level II	Interactive video that requires a videodisc player with an internal CPU and memory. Both the videodisc material and the control program are recorded on the videodisc.
Level III	Interactive video that requires both a videodisc player and a peripheral general-purpose computer system. The computer program controls all operations of the videodisc player.
Random Access	The ability to access any block of data from a storage medium at roughly the same rate.
Remote Control	The handheld, push-button device that allows a user to control and direct the playback of Level I interactive video systems.
Repurpose	This is the practice of using a videodisc or supplementary materials in a method other than originally designed by the author.
RF adaptor	A piece of hardware that enables a player to be hooked up to any television. The adaptor may be built in the player or may be an external part of the hardware accessory package.
RS-232C	The standard serial interface that allows the videodisc player to be connected to a computer. It requires a specific cable connection.
Software	Used ambiguously to refer to either the audio and video portion of a video program, or the computer program that controls a Level III interactive video system.
Touchscreen	A special monitor/television screen which acts as an input device to a computer when it senses touch. Several varieties of touchscreen are available. Some actually require the user to touch them, while others sense the object (finger, etc.) coming close to the screen.
Video Monitor	A computer monitor that accepts a standard video signal, such as the one produced by a videodisc or videotape player.
Videodisc	An analog optical disc, shaped like a record, with video information embedded in a metallic surface and sealed in plastic. The information is retrieved by using a videodisc player. Also, commonly known as laserdisc.

Appendix

Videodisc Index by Grade

The videodisc titles in this index* are organized alphabetically by appropriate grade levels (K-6, 7-8 and 9-12), according to the lowest grade level for which the videodisc is intended. The grade level groupings are as follows:

K-6 35
K-6 and 7-8 37
K-6, 7-8 and 9-12 38
7-8 and 9-12 43
9-12 47

* Emerging Technology Consultants Inc. (1995). *Multimedia and Videodisc Compendium for education and training.* St. Paul, MN 55113, 612/639-3973.

K-6 Titles

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
3-2-1 Classroom Contact Videodisc Scientific ...	80			Science: Interdisciplinary	✓		
Addition/Subtraction/Multiplication/Division	65		✓	Mathematics	✓		
AIDS: A Different Kind of Germ	36			Health: Children at Risk	✓		
Alexander and the Terrible, Horrible, No Good ...	52			Language Arts	✓		
Alexander, Who Used To Be Rich Last Sunday	52			Language Arts	✓		
All About Animals: Insects	82			Science: Life Science	✓		
Animal Behavior Series (4)	82			Science: Life Science	✓		
Animal Homes	83			Science: Life Science	✓		
Animals and Us	83			Science: Life Science	✓		
Animals in Motion	83			Science: Life Science	✓		
Basic Grammar Series	59			Language Arts: Skills	✓		
Be Smart! Be Safe! A Drug Education Program	49			Health: Substance Aware	✓		
Beginnings: You Won't Get AIDS	37			Health: Children at Risk	✓		
Bicycle and Wheel Safety	50			Health: Youth Topics	✓		
Bio Sci II Elementary	83		✓	Science: Life Science	✓		
Bobby's Choice: A Story About Honesty	50			Health: Youth Topics	✓		
Boots and Her Kittens/ ...	52			Language Arts	✓		
Briar Rose: The Sleeping Beauty/Katura & the Cat	54			Language Arts: Literature	✓		
Children's Songs Around the World	68			Music	✓		
Clean Up Your Act	50			Health: Youth Topics	✓		
Curious George	52			Language Arts	✓		
Davidson's Story Club	52			Language Arts	✓		
Dinosaurs: A Closer Look	76			Science: Earth	✓		
Discover the Wonder (6)	80		✓	Science: Interdisciplinary	✓		
Disney's I'm No Fool Series (6)	50			Health: Youth Topics	✓		
Draw and Color Funny Doodles with Uncle Fred	9		✓	Art	✓		
Drugs, Alcohol, and Your Body	49			Health: Substance Aware	✓		
Earth's Natural Resources (2)	76			Science: Earth	✓		
Eat Well, Grow Well/ How it Reacts to Stress	50			Health: Youth Topics	✓		
Ecology for Beginners (3)	84			Science: Life Science	✓		
Ecology for Beginners: Plants/Animals	84			Science: Life Science	✓		
Estuaries Marines	76			Science: Earth	✓		
Everyone Helps in a Community	106			Social Science: Social St	✓		
Fall Brings Changes	80			Science: Interdisciplinary	✓		
Fire: Why Does It Burn?	92		✓	Science: Physical	✓		
A First Look at Birds/All About Birds	86			Science: Life Science	✓		
A First Look at Mammals/All About Mammals	86			Science: Life Science	✓		
First Thanksgiving	100		✓	Social Science: History	✓		
The Five Senses	86			Science: Life Science	✓		
Freshwater/Freshwater Wetlands	86			Science: Life Science	✓		
Frog and Toad are Friends with Frog and Toad	53			Language Arts	✓		
Garbage Tale—An Environmental Adventure	79			Science: Environmental	✓		
Gems & Minerals: A Closer Look	77			Science: Earth	✓		
Germs and What They Do/ How it Heals Itself	51			Health: Youth Topics	✓		
The Gingerbread Man/The Little Red Hen	55			Language Arts: Literature	✓		
Goldilocks/The Country Mouse	55			Language Arts: Literature	✓		
Goofy Over Dental Health	51			Health: Youth Topics	✓		
Goofy Over Health	51			Health: Youth Topics	✓		
Grammar Rock	61			Language Arts: Skills	✓		
Habitats	86			Science: Life Science	✓		
Halloween Surprises	51			Health: Youth Topics	✓		
Hare and the Tortoise/Whazzat?	53			Language Arts	✓		
Harry and the Lady Next Door	53		✓	Language Arts	✓		
Health: Food and Nutrition	51			Health: Youth Topics	✓		
Hi Cat/Pet Show/Goggles	53			Language Arts	✓		
History Rock	101			Social Science: History	✓		

K-6 Titles (continued)

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
How the Elephant Got His Trunk/...	55			Language Arts: Literature	✓		
I'll Fix Anthony	53			Language Arts	✓		
Insects: A Closer Look	87			Science: Life Science	✓		
John Henry: An American Legend	56			Language Arts: Literature	✓		
Kinder Ventures	61		✓	Language Arts: Skills	✓		
Knots on a Counting Rope	62			Language Arts: Skills	✓		
Learning About Electricity	92			Science: Physical	✓		
Learning about Science Series	93			Science: Physical	✓		
Life Lab Science (4)	88			Science: Life Science	✓		
Lollipop Dragon Goes Continental (4)	96			Social Science: Geography	✓		
Map Skills: Maps (3rd Ed.)/Globes/Directions	96			Social Science: Geography	✓		
Math for Beginners Vol I/Vol II (2)	66			Mathematics	✓		
Matter and Energy for Beginners (3)	93			Science: Physical	✓		
McGruff's Drug Alert	49			Health: Substance Aware	✓		
Mickey Mouse: Safety Belt Expert	51			Health: Youth Topics	✓		
The Middle East: A Closer Look	96			Social Science: Geography	✓		
MIST 1-5 (5)	81		✓	Science: Interdisciplinary	✓		
Morris Has a Cold	51			Health: Youth Topics	✓		
Multiplication Rock	67			Mathematics	✓		
Nate the Great and the Sticky Case ...	56			Language Arts: Literature	✓		
Otherwise Known as Sheila the Great	53		✓	Language Arts	✓		
Our Wonderful Body (3)	89			Science: Life Science	✓		
Pedestrian Safety	51			Health: Youth Topics	✓		
People Who Help Us Stay Healthy ...	89			Science: Life Science	✓		
Pilgrims at Plymouth	102		✓	Social Science: History	✓		
Playground Fun	52			Health: Youth Topics	✓		
Power of No: The Wizard Returns	49			Health: Substance Aware	✓		
Preserving Biodiversity/Protecting Habitats	80			Science: Environmental	✓		
Ralph S. Mouse	53			Language Arts	✓		
Rapunzel/Rumpelstilskin	57			Language Arts: Literature	✓		
Saving Engangered Species/Valuing Predators	80			Science: Environmental	✓		
Scholastic Science Place Videodiscs (2)	81		✓	Science: Interdisciplinary	✓		
Science Discovery Elementary	81		✓	Science: Interdisciplinary	✓		
Science Horizons Laserdisc (4)	82		✓	Science: Interdisciplinary	✓		
Science Primer: Earth, Air, Water, Fire	78			Science: Earth	✓		
Science Rock	82			Science: Interdisciplinary	✓		
Season Stories	53			Language Arts	✓		
Sooper Puppy (2)	49			Health: Substance Aware	✓		
Spring Brings Changes	90			Science: Life Science	✓		
Stephen's Secret	37			Health: Children at Risk	✓		
Storytelling/Sentences that Ask and Tell	64			Language Arts: Skills	✓		
Street Safe, Street Smart	52			Health: Youth Topics	✓		
Tell 'em How You Feel	38			Health: Children at Risk	✓		
The Tenth Good Thing About Barney	54			Language Arts	✓		
This Is You (8)	90			Science: Life Science	✓		
Three Fox Fables/Wolf and the Seven Kids	58			Language Arts: Literature	✓		
Thumbs Up for Kids/AIDS Education	38			Health: Children at Risk	✓		
Turning Over a New Leaf	50			Health: Substance Aware	✓		
U.S. Regions Series: (3)	97			Social Science: Geography	✓		
Understanding Ecology: What is a Habitat? ...	90			Science: Life Science	✓		
Victor	107		✓	Social Science: Social St	✓		
Video Ways to Reading Series	64			Language Arts: Skills	✓		
The Wall	58			Language Arts: Literature	✓		
The Wednesday Surprise/The Quarreling Book	58			Language Arts: Literature	✓		
What is AIDS?	38			Health: Children at Risk	✓		
What is an Ecosystem?/What Is a Food Chain?	91			Science: Life Science	✓		

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
K-6 Titles (continued)							
What Tadoo (3)	38	✍		Health: Children at Risk	✓		
What to do at Home	52	✍		Health: Youth Topics	✓		
What's a Good Story? (2)	64	✍		Language Arts: Skills	✓		
When Your Parents Divorce/If Your Parents Drink	38	✍		Health: Children at Risk	✓		
The Wide World Series (2)	54	✍		Language Arts	✓		
Wild Places (3)	91	✍		Science: Life Science	✓		
Windows on Science-Earth Science	78	✍	✓	Science: Earth	✓		
Windows on Science-Life Science	91	✍	✓	Science: Life Science	✓		
Windows on Science-Physical Science	94	✍	✓	Science: Physical	✓		
Windows on Science-Primary Science	82	✍	✓	Science: Interdisciplinary	✓		
The Wizard of No	38	✍		Health: Children at Risk	✓		
Wonder World of Science (7)	74	✍		Science: Air & Space	✓		
The Wonderful Problems of Fizz & Martina	67	✍		Mathematics	✓		
Wonders in Your Own Backyard	91	✍		Science: Life Science	✓		
Your Active Body (2)	91	✍		Science: Life Science	✓		
K-6 and 7-8 Titles							
About Your Body	82	✍		Science: Life Science	✓	✓	
The Adventures of Jasper Woodbury	65	✍		Mathematics	✓	✓	
Alcohol and Drugs: Making the Right Decision	48	✍		Health: Substance Aware	✓	✓	
Animal Life in a Tidepool	83	✍	✓	Science: Life Science	✓	✓	
Animals and How They Live Series (9)	83	✍		Science: Life Science	✓	✓	
Assignment Alcohol/Drugs/Smoking	49	✍		Health: Substance Aware	✓	✓	
The Body Fights Disease	83	✍		Science: Life Science	✓	✓	
Boy Stuff	50	✍		Health: Youth Topics	✓	✓	
Boy to Man	50	✍	✓	Health: Youth Topics	✓	✓	
Breath of Life: Our Respiratory System	83	✍	✓	Science: Life Science	✓	✓	
Building Blocks/Marine Marvels	76	✍		Science: Earth	✓	✓	
Channel R.E.A.D. Videodisc Series (15)	60	✍		Language Arts: Skills	✓	✓	
The Children's Encyclopedia of Math: Decimals	65	✍		Mathematics	✓	✓	
Communicable Diseases	50	✍		Health: Youth Topics	✓	✓	
Communities in the Sea/Dolphins, Rays	76	✍		Science: Earth	✓	✓	
Dinosaur	76	✍		Science: Earth	✓	✓	
Dinosaurs-The Terrible Lizards/Age of Mammals	76	✍		Science: Earth	✓	✓	
Exploring French/Exploring Spanish (2)	27	✍		Foreign Language	✓	✓	
Exploring Geography (11)	96	✍		Social Science: Geography	✓	✓	
Exploring History (6)	100	✍		Social Science: History	✓	✓	
Exploring Human Relations (3)	55	✍		Language Arts: Literature	✓	✓	
Exploring Science (5)	80	✍		Science: Interdisciplinary	✓	✓	
The First National Kidisc	52			Language Arts	✓	✓	
Food and Growth	51	✍		Health: Youth Topics	✓	✓	
Food into Fuel: Our Digestive System	86	✍	✓	Science: Life Science	✓	✓	
From Sea to Sea/Places in the Sea	77	✍		Science: Earth	✓	✓	
The Geography of the United States (8)	96	✍		Social Science: Geography	✓	✓	
Girl to Woman	51	✍	✓	Health: Youth Topics	✓	✓	
Great Americans (3)	100	✍		Social Science: History	✓	✓	
The Great Ocean Rescue	79	✍		Science: Environmental	✓	✓	
The Great Solar System Rescue	72	✍		Science: Air & Space	✓	✓	
Healthy 2000 Series (2)	37	✍		Health: Children at Risk	✓	✓	
How Animals Survive Series (2)	86	✍	✓	Science: Life Science	✓	✓	
How We Classify Animals	86	✍	✓	Science: Life Science	✓	✓	
If I'm Lyin', I'm Dyin': A Story About Smoking	49	✍		Health: Substance Aware	✓	✓	
In Control: Our Brain and Nervous System	87	✍	✓	Science: Life Science	✓	✓	
Less Stress	51	✍		Health: Youth Topics	✓	✓	
Life Below/Coral	87	✍		Science: Life Science	✓	✓	

K-6 and 7-8 Titles (continued)

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
Living Together/Living and Growing	88	✍		Science: Life Science	✓	✓	
Map Skills: Latitude/Longitude/Scale	96	✍		Social Science: Geography	✓	✓	
Map Skills: Physical Features/Using Maps	96	✍		Social Science: Geography	✓	✓	
Mastering Decimals and Percents	66	✍	✓	Mathematics	✓	✓	
Mastering Equations, Roots and Exponents	66	✍	✓	Mathematics	✓	✓	
Mastering Fractions	66	✍	✓	Mathematics	✓	✓	
Mastering Ratios and Word Problem Strategies	66	✍	✓	Mathematics	✓	✓	
Masterpiece Series (4)	56	✍		Language Arts: Literature	✓	✓	
Never Say Yes to a Stranger	51	✍		Health: Youth Topics	✓	✓	
Noncommunicable Diseases	51	✍		Health: Youth Topics	✓	✓	
Our Flexible Frame: Skeletal & Muscular Systems	89	✍	✓	Science: Life Science	✓	✓	
Our Planet: A Closer Look	78	✍		Science: Earth	✓	✓	
Physical Science: Chemical Energy	93	✍		Science: Physical	✓	✓	
Physical Science: Electrical Energy	93	✍		Science: Physical	✓	✓	
Physical Science: Energy at Work	93	✍		Science: Physical	✓	✓	
Physical Science: Heat Energy	93	✍		Science: Physical	✓	✓	
Physical Science: Light Energy	93	✍		Science: Physical	✓	✓	
Physical Science: Mechanical Energy	93	✍		Science: Physical	✓	✓	
Problem Solving with Addition and Subtraction	67	✍		Mathematics	✓	✓	
Problem Solving with Multiplication and Division	67	✍		Mathematics	✓	✓	
Problem Solving with Tables, Graphs and Statistics	67	✍		Mathematics	✓	✓	
Pumping Life: The Heart and Circulatory System	89	✍	✓	Science: Life Science	✓	✓	
Science 2000	81	✍	✓	Science: Interdisciplinary	✓	✓	
Science Discovery: Science Sleuths	81	✍		Science: Interdisciplinary	✓	✓	
Sexual Changes: Boys/Sexual Changes: Girls	52	✍		Health: Youth Topics	✓	✓	
Silent Safari Series (3)	90	✍		Science: Life Science	✓	✓	
Simple Machines: Inclined Planes/Levers	93	✍		Science: Physical	✓	✓	
Simple Machines: Pulleys/Wheels and Axles ...	94	✍		Science: Physical	✓	✓	
Space: A Closer Look	73	✍		Science: Air & Space	✓	✓	
STV: Plants	90	✍	✓	Science: Life Science	✓	✓	
Texas: A New Look	97	✍		Social Science: Geography	✓	✓	
Then One Year	52	✍	✓	Health: Youth Topics	✓	✓	
Understanding Weather and Climate (2)	78	✍		Science: Earth	✓	✓	
Understanding Weather (2)	78	✍		Science: Earth	✓	✓	
The Voyage of the MIMI	82	✍	✓	Science: Interdisciplinary	✓	✓	
What is a Fish?/Armed and Dangerous	91	✍		Science: Life Science	✓	✓	
The World of Protozoa	91	✍		Science: Life Science	✓	✓	

K-6, 7-8 and 9-12 Titles

90° South	97			Social Science: History	✓	✓	✓
A is for AIDS	36	✍		Health: Children at Risk	✓	✓	✓
Aardman Animations	8			Art	✓	✓	✓
The Adventures of Robin Hood	54			Language Arts: Literature	✓	✓	✓
Africa (2)	105	✍	✓	Social Science: Social St	✓	✓	✓
AIDS/HIV—Answers for Young People	36	✍	✓	Health: Children at Risk	✓	✓	✓
AIDS: What Every Kid Should Know	37	✍		Health: Children at Risk	✓	✓	✓
Alaska: The 49th State/Hawaii: The 50th State	94	✍		Social Science: Geography	✓	✓	✓
Alcohol...Drugs...and Kids	48	✍		Health: Substance Aware	✓	✓	✓
Alfred Wegener: Continental Drift	75	✍		Science: Earth	✓	✓	✓
All Summer in a Day	37	✍		Health: Children at Risk	✓	✓	✓
All That Bach	67			Music	✓	✓	✓
All Things Animal	82	✍		Science: Life Science	✓	✓	✓
The American History Videodisc	98	✍		Social Science: History	✓	✓	✓
American History-Birth of a Nation Series (3)	98	✍		Social Science: History	✓	✓	✓
American Lifestyle Series: Cultural Leaders (3)	99	✍		Social Science: History	✓	✓	✓

K-6, 7-8 and 9-12 Titles (continued)

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
American Lifestyle: Inventors & Industrialists (6)	99	✍		Social Science: History	✓	✓	✓
American Lifestyle: Politics and the Military (4)	99	✍		Social Science: History	✓	✓	✓
American Lifestyle: U.S. Presidents (5)	99	✍		Social Science: History	✓	✓	✓
American Sign Language in Canada	59			Language Arts: Skills	✓	✓	✓
American Visions: Acadia/Smoky Mountains (3)	94			Social Science: Geography	✓	✓	✓
Ancient World 2000	99	✍	✓	Social Science: History	✓	✓	✓
Another Page	59			Language Arts: Skills	✓	✓	✓
Atomic Energy	92	✍		Science: Physical	✓	✓	✓
Audubon Society's VideoGuide: Birds of NA (5)	83			Science: Life Science	✓	✓	✓
Bacteria and Health	50	✍		Health: Youth Topics	✓	✓	✓
Bee Basics and Spider Survival	83	✍		Science: Life Science	✓	✓	✓
Best Boy	19			Classic and Contemp Film	✓	✓	✓
Bio Libe's Nature View Encyclopedia	83	✍		Science: Life Science	✓	✓	✓
The Biology Encyclopedia	83			Science: Life Science	✓	✓	✓
Bones and Muscle: A Team	83	✍		Science: Life Science	✓	✓	✓
Boys Beware/Girls Beware	37	✍		Health: Children at Risk	✓	✓	✓
Butterflies	84	✍		Science: Life Science	✓	✓	✓
Cadillac Dreams	37	✍		Health: Children at Risk	✓	✓	✓
Celebrate	106	✍		Social Science: Social St	✓	✓	✓
Cells and Life	84	✍		Science: Life Science	✓	✓	✓
Charles Darwin: Species Evolution	84	✍		Science: Life Science	✓	✓	✓
Chemistry Disc: Exothermic & Endothermic React	74	✍		Science: Chemistry	✓	✓	✓
The Chemistry Disc: Rapid Reactions	74	✍		Science: Chemistry	✓	✓	✓
China (2)	99	✍	✓	Social Science: History	✓	✓	✓
Choices: Learning about AIDS	37	✍		Health: Children at Risk	✓	✓	✓
Chronoscope: Exploring 1492	106	✍		Social Science: Social St	✓	✓	✓
Civil War: Union At Risk	99	✍		Social Science: History	✓	✓	✓
Close Encounters of the Third Kind	19			Classic and Contemp Film	✓	✓	✓
Common Eye Problems-General Opthalmology	40		✓	Health: Medical	✓	✓	✓
Communities of Living Things (Rev.)	84	✍		Science: Life Science	✓	✓	✓
The Complete Churchill	105			Social Science: Pol Sci	✓	✓	✓
Creative Process: Norman McLaren	9			Art	✓	✓	✓
Crystal Vista	68			Music	✓	✓	✓
The Cycling Experience	94			Social Science: Geography	✓	✓	✓
A Day's Wait/After Twenty Years	52	✍		Language Arts	✓	✓	✓
Death Trap	84			Science: Life Science	✓	✓	✓
Destination: Universe	72			Science: Air & Space	✓	✓	✓
Diez Temas (5)	27	✍		Foreign Language	✓	✓	✓
Digestion: Food to Energy	84	✍		Science: Life Science	✓	✓	✓
Dinosaur!	76			Science: Earth	✓	✓	✓
Dinosaurs	76			Science: Earth	✓	✓	✓
Duck's Unlimited VideoGuide, ... , &Game Birds	84			Science: Life Science	✓	✓	✓
Earth and Space	60	✍		Language Arts: Skills	✓	✓	✓
Earth Dance	68			Music	✓	✓	✓
Earth Science	76	✍		Science: Earth	✓	✓	✓
Encyclopedia of Animals: Carnivores and Sea ...	85	✍		Science: Life Science	✓	✓	✓
Encyclopedia of Animals: Fish and Invertebrates	85	✍		Science: Life Science	✓	✓	✓
Encyclopedia of Animals: Herbivores	85	✍		Science: Life Science	✓	✓	✓
Encyclopedia of Animals: Insects and Spiders	85	✍		Science: Life Science	✓	✓	✓
Encyclopedia of Animals: ... , Penguins, Birds ...	85	✍		Science: Life Science	✓	✓	✓
Encyclopedia of Animals: Plovers, Woodpeckers	85	✍		Science: Life Science	✓	✓	✓
Encyclopedia of Animals: Primates	85	✍		Science: Life Science	✓	✓	✓
Encyclopedia of Animals: Reptiles &Amphibians	85	✍		Science: Life Science	✓	✓	✓
English Express	60	✍		Language Arts: Skills	✓	✓	✓
The Evolution of Cells	85	✍		Science: Life Science	✓	✓	✓
Evolution/Strange and Unusual Animals	86	✍		Science: Life Science	✓	✓	✓

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K-6, 7-8 and 9-12 Titles (continued)

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
Exito	27			Foreign Language	✓	✓	✓
Exotic Plants: A Videodisc Compendium	86			Science: Life Science	✓	✓	✓
Explore Antarctica!	80	✓		Science: Interdisciplinary	✓	✓	✓
Exploring Our Solar System	72	✓		Science: Air & Space	✓	✓	✓
The Fall of Freddie the Leaf	52	✓	✓	Language Arts	✓	✓	✓
Fir Tree/Christmas Lace	55	✓		Language Arts: Literature	✓	✓	✓
First Ladies	100			Social Science: History	✓	✓	✓
Flight of the Dream Team	72			Science: Air & Space	✓	✓	✓
The Floating World	68			Music	✓	✓	✓
Flyers	19			Classic and Contemp Film	✓	✓	✓
The Flying Machine	72			Science: Air & Space	✓	✓	✓
Follow My Leader	52	✓		Language Arts	✓	✓	✓
For All Mankind	72			Science: Air & Space	✓	✓	✓
Fossils! Fossils!	77	✓		Science: Earth	✓	✓	✓
Frederic Remington: "The Truth of Other Days"	9	✓		Art	✓	✓	✓
Frontiers in Science (8)	81	✓		Science: Interdisciplinary	✓	✓	✓
Fun & Games	53			Language Arts	✓	✓	✓
Galileo: The Solar System	72	✓		Science: Air & Space	✓	✓	✓
Gems and Minerals	77			Science: Earth	✓	✓	✓
Golden Lizard: Mexican Folktale	53	✓		Language Arts	✓	✓	✓
The Granite State Sampler	106			Social Science: Social S	✓	✓	✓
Great National Parks	96			Social Science: Geography	✓	✓	✓
Great National Parks (3)	96			Social Science: Geography	✓	✓	✓
Great Wonders of the World Series (3)	96			Social Science: Geography	✓	✓	✓
GTV: Geographic Perspective-American History	100	✓		Social Science: History	✓	✓	✓
GTV: Planetary Manager	79	✓		Science: Environmental	✓	✓	✓
Had You Lived Then Series (6)	106	✓		Social Science: Social St	✓	✓	✓
Heat: Molecules in Motion	92	✓		Science: Physical	✓	✓	✓
The Heimlich Maneuver: How to Save a Choking	48	✓	✓	Health: Safety	✓	✓	✓
Here I Have Lived	101	✓		Social Science: History	✓	✓	✓
High Tech Reports (3)	81	✓		Science: Interdisciplinary	✓	✓	✓
The History Disquiz	101			Social Science: History	✓	✓	✓
History in Motion: Milestones of the 20th Century	101	✓		Social Science: History	✓	✓	✓
How Great Thou Art	69			Music	✓	✓	✓
The Human Sexuality Videodisc	51	✓		Health: Youth Topics	✓	✓	✓
Hurricane Hugo	77			Science: Earth	✓	✓	✓
IBM Columbus: Encounter, Discovery and Beyond	101			Social Science: History	✓	✓	✓
IBM Illuminated Books and Manuscripts	55			Language Arts: Literature	✓	✓	✓
Illumination	69			Music	✓	✓	✓
Images of Antiquity	72	✓		Religion	✓	✓	✓
IMAX: Blue Planet	72			Science: Air & Space	✓	✓	✓
IMAX: Fires of Kuwait	79			Science: Environmental	✓	✓	✓
IMAX: Hail Columbia!	73			Science: Air & Space	✓	✓	✓
The Immune System: Your Magic Doctor	87	✓		Science: Life Science	✓	✓	✓
Insects	87			Science: Life Science	✓	✓	✓
Inside Hawaiian Volcanoes	77			Science: Earth	✓	✓	✓
Interactive ModuMath (20)	66	✓		Mathematics	✓	✓	✓
Interactive NOVA: Animal Pathfinders	87	✓	✓	Science: Life Science	✓	✓	✓
Interactive NOVA: Earth	77	✓	✓	Science: Earth	✓	✓	✓
Interactive NOVA: The Miracle of Life	87			Science: Life Science	✓	✓	✓
Interactive NOVA: Race to Save the Planet	79	✓	✓	Science: Environmental	✓	✓	✓
Interactive Science Series: Animals	87			Science: Life Science	✓	✓	✓
Interactive Science Series: Energy	92			Science: Physical	✓	✓	✓
Interactive Science Series: Plants	87			Science: Life Science	✓	✓	✓
Interactive Science Series: Weather	77			Science: Earth	✓	✓	✓
Inventors and the American Industrial Revolution	101	✓		Social Science: History	✓	✓	✓

K-6, 7-8 and 9-12 Titles (continued)

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
Issues in Chemistry	75	✍		Science: Chemistry	✓	✓	✓
It's Chemical Series (2)	92	✍		Science: Physical	✓	✓	✓
Jesus and His Times	72			Religion	✓	✓	✓
Jets and Classics	73			Science: Air & Space	✓	✓	✓
King Tut: The Face of Tutankamun	96			Social Science: Geography	✓	✓	✓
The Kremlin	106			Social Science: Social St	✓	✓	✓
Landforms and Climates of the U.S.	77	✍	✓	Science: Earth	✓	✓	✓
Laser Learning Lessons: Set 1 (6)	62	✍		Language Arts: Skills	✓	✓	✓
Laser Learning Lessons: Set 2 (6)	62	✍		Language Arts: Skills	✓	✓	✓
Laser Learning Lessons: Set 3 (6)	62	✍		Language Arts: Skills	✓	✓	✓
Library World (2nd Ed)	62	✍	✓	Language Arts: Skills	✓	✓	✓
The Life of a Red Blood Cell	88	✍		Science: Life Science	✓	✓	✓
Lifetimes of Change: Development and Growth	88	✍		Science: Life Science	✓	✓	✓
The Lilith Summer	53	✍		Language Arts	✓	✓	✓
The Living Body (26)	88	✍	✓	Science: Life Science	✓	✓	✓
The Living Constitution	101	✍		Social Science: History	✓	✓	✓
The Living Reef	88	✍		Science: Life Science	✓	✓	✓
Living Trees/The Living Soil	88	✍		Science: Life Science	✓	✓	✓
The Lost World	56			Language Arts: Literature	✓	✓	✓
Mark Twain's Hartford Home	56	✍		Language Arts: Literature	✓	✓	✓
Mark Twain: How I Came into the Literary Prof...	56	✍		Language Arts: Literature	✓	✓	✓
Mass and Density: Investigating Matter	93	✍		Science: Physical	✓	✓	✓
Mastering Informal Geometry	66	✍	✓	Mathematics	✓	✓	✓
Math Basics	66			Mathematics	✓	✓	✓
Math Sleuths	67	✍	✓	Mathematics	✓	✓	✓
Mathematical Eye (20)	67	✍		Mathematics	✓	✓	✓
Michael Palin's Pole to Pole	96			Social Science: Geography	✓	✓	✓
Michelangelo: Self Portrait	10			Art	✓	✓	✓
Microbes: Bacteria and Fungi	89	✍		Science: Life Science	✓	✓	✓
The Miracle of Life	89			Science: Life Science	✓	✓	✓
Mitosis and Genetics	89	✍		Science: Life Science	✓	✓	✓
Mona Lisa Descending a Staircase	10	✍		Art	✓	✓	✓
The Moscow Virtuosi	69			Music	✓	✓	✓
National Gallery of Art	10			Art	✓	✓	✓
The National Zoo	89			Science: Life Science	✓	✓	✓
Natural Light: Windance	69			Music	✓	✓	✓
Nature's Serenade	69			Music	✓	✓	✓
Nature's Symphony	69			Music	✓	✓	✓
Newton's Laws of Motion	93	✍		Science: Physical	✓	✓	✓
The Night Sky/Universe: Beyond Solar System	73	✍		Science: Air & Space	✓	✓	✓
Nimitz Disc #1	101			Social Science: History	✓	✓	✓
Norman Rockwell's World, An American Dream	10	✍		Art	✓	✓	✓
O. Henry's Jimmy Valentine	56	✍		Language Arts: Literature	✓	✓	✓
Our Biosphere: The Earth on Our Hands	77			Science: Earth	✓	✓	✓
Our Environment	79	✍		Science: Environmental	✓	✓	✓
Our Heritage, Vols. I and II (2)	101	✍	✓	Social Science: History	✓	✓	✓
Paul Parkranger &Mystery of Disappearing Ducks	79	✍		Science: Environmental	✓	✓	✓
Penguin World	89			Science: Life Science	✓	✓	✓
Periodic Table Videodisc: Reactions of Elements	75	✍		Science: Chemistry	✓	✓	✓
Photosynthesis/Plants in Action	89	✍		Science: Life Science	✓	✓	✓
Physics of the Indy 500	93	✍		Science: Physical	✓	✓	✓
Planetscapes: Space Disc Vol 2	73			Science: Air & Space	✓	✓	✓
Plants at Work and Seeds in Motion	89	✍		Science: Life Science	✓	✓	✓
Pollination Biology	89	✍		Science: Life Science	✓	✓	✓
Principle of the Adult Literacy System (PALS)	63			Language Arts: Skills	✓	✓	✓
Protecting Our Environment (3)	80	✍	✓	Science: Environmental	✓	✓	✓

K-6, 7-8 and 9-12 Titles (continued)

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
Pulling G's	73			Science: Air & Space	✓	✓	✓
Quinze Minute	29	✓		Foreign Language	✓	✓	✓
Rainbow War	105	✓		Social Science: Psychology	✓	✓	✓
The Ransom of Red Chief	56	✓		Language Arts: Literature	✓	✓	✓
The Red Balloon/White Mane	57			Language Arts: Literature	✓	✓	✓
Regard for the Planet: 50,000 Photographs	10			Art	✓	✓	✓
Regions of the U.S.	97	✓	✓	Social Science: Geography	✓	✓	✓
Rocks, Minerals, and Fossils	78	✓		Science: Earth	✓	✓	✓
Scenic Wonders of America	97			Social Science: Geography	✓	✓	✓
Science Discovery: Middle School	81	✓		Science: Interdisciplinary	✓	✓	✓
Scientific Eye Series-Chemistry (4)	75	✓		Science: Chemistry	✓	✓	✓
Scientific Eye Series-Earth (4)	78	✓		Science: Earth	✓	✓	✓
Scientific Eye Series-Life Science (11)	90	✓		Science: Life Science	✓	✓	✓
Scientific Eye Series-Physical (5)	93	✓		Science: Physical	✓	✓	✓
Scientific Eye: Stars and Planets	73	✓		Science: Air & Space	✓	✓	✓
Scientific Measurement	93	✓		Science: Physical	✓	✓	✓
Show Boat	57			Language Arts: Literature	✓	✓	✓
Sign Language Basics	63	✓	✓	Language Arts: Skills	✓	✓	✓
Silent Enemy: An Epic of the American Indian	102			Social Science: History	✓	✓	✓
Simple and Compound Machines: How They Work	93	✓		Science: Physical	✓	✓	✓
Solar Energy	94	✓		Science: Physical	✓	✓	✓
South-Western Computer Dimensions	23	✓		Computer Education	✓	✓	✓
Space Shuttle: Space Disc Vol 3	73			Science: Air & Space	✓	✓	✓
Stand Up for Yourself: Peer Pressure and Drugs	49	✓	✓	Health: Substance Aware	✓	✓	✓
The Story of English	54	✓		Language Arts	✓	✓	✓
The Storyteller/Charles	54	✓		Language Arts	✓	✓	✓
Struggles for Justice: Vol 1	102	✓		Social Science: History	✓	✓	✓
Struggles for Justice: Vol 2	102			Social Science: History	✓	✓	✓
STV: Rain Forest	80	✓		Science: Environmental	✓	✓	✓
STV: Restless Earth	78	✓		Science: Earth	✓	✓	✓
STV: Solar System	74	✓		Science: Air & Space	✓	✓	✓
Survival of Spaceship Earth	80			Science: Environmental	✓	✓	✓
Symphony Orchestra Series	70	✓		Music	✓	✓	✓
Time: How We Measure It	94	✓		Science: Physical	✓	✓	✓
To Fly	20			Classic and Contemp Film	✓	✓	✓
Tobacco	50	✓	✓	Health: Substance Aware	✓	✓	✓
Tropical Sweets	70			Music	✓	✓	✓
Understanding Chemistry and Energy	75	✓		Science: Chemistry	✓	✓	✓
University of Delaware Videodisc Music Series	70			Music	✓	✓	✓
Van Gogh Revisited	11			Art	✓	✓	✓
Vancouver Disc	97			Social Science: Geography	✓	✓	✓
The Video Encyclopedia of the 20th Century	104	✓		Social Science: History	✓	✓	✓
Views of a Vanishing Frontier	11	✓		Art	✓	✓	✓
VISTIM - Visual Language Development Program	64	✓		Language Arts: Skills	✓	✓	✓
The Visual Almanac	107			Social Science: Social St	✓	✓	✓
Volcanoes: Exploring the Restless Earth	78	✓		Science: Earth	✓	✓	✓
Voyager Gallery: Space Disc Vol 1	74			Science: Air & Space	✓	✓	✓
Voyager Odyssey	74			Science: Air & Space	✓	✓	✓
Washington, D.C.	97	✓		Social Science: Geography	✓	✓	✓
Weather Dynamics	78	✓		Science: Earth	✓	✓	✓
Weather: Air in Action Series	78	✓		Science: Earth	✓	✓	✓
West Side Story	20			Classic and Contemp Film	✓	✓	✓
The Western Civilization Videodisc	104	✓		Social Science: History	✓	✓	✓
The Wetlands	80	✓		Science: Environmental	✓	✓	✓
What Makes Clouds?/What Makes Wind Blow?	78	✓		Science: Earth	✓	✓	✓
When Your Parent Drinks Too Much	38	✓		Health: Children at Risk	✓	✓	✓

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
K-6, 7-8 and 9-12 Titles (continued)							
Why Man Creates	105	✍		Social Science: Psychology	✓	✓	✓
Wildlife Fantasia	70			Music	✓	✓	✓
Wind and Water Energy	94	✍		Science: Physical	✓	✓	✓
With Byrd at the South Pole	104			Social Science: History	✓	✓	✓
The Wizard of Oz	20			Classic and Contemp Film	✓	✓	✓
A World Alive	91			Science: Life Science	✓	✓	✓
World Cultures and Youth (6)	108	✍	✓	Social Science: Social St	✓	✓	✓
The World History (Non-European History)	104	✍		Social Science: History	✓	✓	✓
Yellowstone in Winter	91	✍		Science: Life Science	✓	✓	✓
You Be the Reporter	64	✍		Language Arts: Skills	✓	✓	✓
You Can Say No to a Drink or a Drug	50	✍		Health: Substance Aware	✓	✓	✓
You Can't Get There From Here	104			Social Science: History	✓	✓	✓
7-8 and 9-12 Titles							
The '88 Vote	105	✍		Social Science: Pol Sci		✓	✓
A Vous La France	26	✍		Foreign Language		✓	✓
Addiction and Its Processes	48			Health: Substance Aware		✓	✓
The Age of Intelligent Machines	23	✍		Computer Education		✓	✓
AIDS	36	✍	✓	Health: Children at Risk		✓	✓
AIDS in Your School	36	✍		Health: Children at Risk		✓	✓
AIDS: Everything You Should Know	36	✍	✓	Health: Children at Risk		✓	✓
Alcohol	48	✍	✓	Health: Substance Aware		✓	✓
Alcohol and Drugs: Causes and Effects of Abuse	48	✍		Health: Substance Aware		✓	✓
America Hurts: The Drug Epidemic	48	✍		Health: Substance Aware		✓	✓
American Chronicle Series (10)	97	✍		Social Science: History		✓	✓
American Constitution: Road from Runnymede	97	✍		Social Science: History		✓	✓
American Diary Series (12)	98	✍	✓	Social Science: History		✓	✓
American Documents Series (8)	98	✍		Social Science: History		✓	✓
American Documents: Broken Treaties	98	✍		Social Science: History		✓	✓
Animation Animation Series (2)	8			Art		✓	✓
Arsenic and Old Lace	54			Language Arts: Literature		✓	✓
Atmospheric Science Series (4)	75	✍		Science: Earth		✓	✓
Attitudes and Communications	17			Career Guidance		✓	✓
Bach Organ Works	67			Music		✓	✓
Bartleby/Discussion of Bartleby	52	✍		Language Arts		✓	✓
The Bartletts: An Interactive History	99			Social Science: History		✓	✓
Basic French by Video	26			Foreign Language		✓	✓
Basic Spanish by Video	26			Foreign Language		✓	✓
Basic Writing Skills	59			Language Arts: Skills		✓	✓
Bay City Kids	50	✍		Health: Youth Topics		✓	✓
Beethoven: Violin Concerto/Romance No. 2	68			Music		✓	✓
Bill Cosby Teaches Reading (2)	59			Language Arts: Skills		✓	✓
Bio Sci II	83	✍	✓	Science: Life Science		✓	✓
Biomes Series (2)	75	✍		Science: Earth		✓	✓
Biomes: Intro/Grassland/Temperate Forest	75	✍		Science: Earth		✓	✓
The Birth of a Nation	19			Classic and Contemp Film		✓	✓
Bizet/Saint-Saens	68			Music		✓	✓
Bolero	105	✍		Social Science: Psychology		✓	✓
Career Decision Making	17			Career Guidance		✓	✓
Careers I-U.S.A.	17			Career Guidance		✓	✓
Chemistry (6)	74	✍	✓	Science: Chemistry		✓	✓
Children of Children	50	✍		Health: Youth Topics		✓	✓
Communism and the Cold War	105	✍	✓	Social Science: Pol Sci		✓	✓
Community Snapshot '91	106			Social Science: Social St		✓	✓
The Computing Technology Videodisc 2.0	23	✍		Computer Education		✓	✓

7-8 and 9-12 Titles (continued)

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
CPR: The New Basic Procedures	32	✍	✓	Health: Care		✓	✓
Critical Thinking Skills	18			Career Guidance		✓	✓
Dead Serious	37	✍		Health: Children at Risk		✓	✓
Deaf Awareness: Let Your Fingers Do the Talking!	60			Language Arts: Skills		✓	✓
The Divided Union	100	✍		Social Science: History		✓	✓
Don Giovanni	68			Music		✓	✓
Dream Window: Reflections on Japanese Garden	94		✓	Social Science: Geography		✓	✓
Dress and Grooming	18			Career Guidance		✓	✓
Dropout Prevention: Being Your Personal Best	37	✍		Health: Children at Risk		✓	✓
Drug and Human Physiology Series (5)	49	✍		Health: Substance Aware		✓	✓
Drugs and Substance Abuse	49	✍	✓	Health: Substance Aware		✓	✓
ECO-Insights: Ecology of the Kananaskis Regions	84			Science: Life Science		✓	✓
Ecology Series: Communities/Popul/Succession	85	✍		Science: Life Science		✓	✓
Ecology Series: Food Chains/Nutrient Cycles	85	✍		Science: Life Science		✓	✓
Ecosystems: Nature in Balance/Ecology	85	✍		Science: Life Science		✓	✓
Effective Study Skills	18	✍		Career Guidance		✓	✓
Effective Test-taking	18	✍		Career Guidance		✓	✓
Epidemic: Deadliest Weapon In America	49	✍		Health: Substance Aware		✓	✓
España Viva	27	✍		Foreign Language		✓	✓
Everybody Rides the Carousel	105	✍		Social Science: Psychology		✓	✓
Fall of the House of Usher/Discussion	55	✍		Language Arts: Literature		✓	✓
Fast Food: What's in It for You?	50	✍		Health: Youth Topics		✓	✓
Fires of Kuwait	100			Social Science: History		✓	✓
Food and Nutrition	51	✍	✓	Health: Youth Topics		✓	✓
France (2)	106	✍	✓	Social Science: Social St		✓	✓
Frost's Death of the Hired Man/Cremation-McGee	59	✍		Language Arts: Poetry		✓	✓
Garbage: The Movie—An Environmental Crisis	79	✍		Science: Environmental		✓	✓
Gift of the Magi/Magic Shop	55	✍		Language Arts: Literature		✓	✓
Glencoe Foundations Success/Reading	61			Language Arts: Skills		✓	✓
Glencoe Foundations for Success/Math	65			Mathematics		✓	✓
Glencoe Foundations for Success/Writing	61			Language Arts: Skills		✓	✓
Global Warming: Hot Times Ahead?	79	✍		Science: Environmental		✓	✓
Have a Healthy Baby: Pregnancy	51	✍	✓	Health: Youth Topics		✓	✓
Hawaiian Paradise	96			Social Science: Geography		✓	✓
Helen L. Allen Textile Collection	9			Art		✓	✓
Hilacha	28			Foreign Language		✓	✓
Hollywood Mavericks	20			Classic and Contemp Film		✓	✓
The Holocaust	101			Social Science: History		✓	✓
How to Get Along With Monsters, Mummies, ...	18	✍		Career Guidance		✓	✓
Human Body: Systems Working Together	86	✍	✓	Science: Life Science		✓	✓
Human Brain/Nervous System	87	✍		Science: Life Science		✓	✓
I Dropped Out, But I Didn't Think It Would ...	37	✍		Health: Children at Risk		✓	✓
IMAX: The Dream Is Alive	72			Science: Air & Space		✓	✓
In the Company of Whales	87	✍	✓	Science: Life Science		✓	✓
In the Holy Land	106	✍	✓	Social Science: Social St		✓	✓
Insects: Little Giants of the Earth	87	✍		Science: Life Science		✓	✓
Insects: Reproduction and Metamorphosis	87	✍		Science: Life Science		✓	✓
Interactive ModuMath: Algebra	66	✍		Mathematics		✓	✓
Interviewing	18			Career Guidance		✓	✓
Introduction to Economics	14			Business		✓	✓
Introduction to Sign Language	61			Language Arts: Skills		✓	✓
Invention: Mastering Sound	92	✍	✓	Science: Physical		✓	✓
Investigating History: Treasures from the Deep	101	✍		Social Science: History		✓	✓
Investigating Science: Treasures from the Deep	81	✍		Science: Interdisciplinary		✓	✓
J. S. Bach and Vivaldi	69			Music		✓	✓
Japanese: The Spoken Language	28			Foreign Language		✓	✓

7-8 and 9-12 Titles (continued)

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
John Fitzgerald Kennedy	101			Social Science: History		✓	✓
Journey to Freedom: The Immigrant Experience	106	✓		Social Science: Social St		✓	✓
Keeping At-Risk Students in School	37	✓		Health: Children at Risk		✓	✓
KYAC	18	✓		Career Guidance		✓	✓
Lab Safety: The Accident at Jefferson High	75	✓		Science: Chemistry		✓	✓
Lady, or the Tiger?/Discussion of the Lady? ...	56	✓		Language Arts: Literature		✓	✓
Laserdisc in the Classroom: Teacher's Guide	109	✓		Teacher Training		✓	✓
Learning To Be Assertive Series (2)	37	✓	✓	Health: Children at Risk		✓	✓
Lernexpress Module 1/2 (2)	28	✓		Foreign Language		✓	✓
Lessons of War	101	✓	✓	Social Science: History		✓	✓
Life Computation Skills	18			Career Guidance		✓	✓
Life Cycles	88	✓		Science: Life Science		✓	✓
Life Moves: The Process of Recovery	49			Health: Substance Aware		✓	✓
The Life of Sojourner Truth: Ain't I a Woman?	106	✓		Social Science: Social St		✓	✓
Life Story	88			Science: Life Science		✓	✓
Little Vera	20			Classic and Contemp Film		✓	✓
The Living Textbook- Field Trips	79	✓		Science: Environmental		✓	✓
The Living Textbook-Astronomy and the Sun	73	✓		Science: Air & Space		✓	✓
The Living Textbook-The Frog	88	✓		Science: Life Science		✓	✓
The Living Textbook-Geology and Meteorology	77	✓	✓	Science: Earth		✓	✓
The Living Textbook-The Human Body	88	✓	✓	Science: Life Science		✓	✓
The Living Textbook-Life Science	88	✓	✓	Science: Life Science		✓	✓
The Living Textbook-Physical Science	93	✓	✓	Science: Physical		✓	✓
Look Before You Eat (2nd ed.)	51	✓		Health: Youth Topics		✓	✓
The Lost Secret	62		✓	Language Arts: Skills		✓	✓
Lottery/Discussion of the Lottery	56	✓		Language Arts: Literature		✓	✓
The Louvre (3)	10			Art		✓	✓
Making Choices	51			Health: Youth Topics		✓	✓
Making it on Your First Job	18	✓		Career Guidance		✓	✓
Manual Hand Tools: A Visual Data Base	117			Training:Trade & Industry		✓	✓
Mark Twain's Connecticut Yankee	56			Language Arts: Literature		✓	✓
Martin Luther King Jr.	101	✓	✓	Social Science: History		✓	✓
Mary Cassatt: Impressionist from Philadelphia	10	✓		Art		✓	✓
Masterpieces of the Hermitage, Vol 1	10			Art		✓	✓
Masterpieces of the Met	10	✓		Art		✓	✓
Meiosis/Mitosis	88	✓		Science: Life Science		✓	✓
Mexico Vivo	28	✓		Foreign Language		✓	✓
The Microscope and Its Incredible World	89	✓		Science: Life Science		✓	✓
Middle East Series (7)	107	✓		Social Science: Social St		✓	✓
A Million Teenagers (5th ed.)	51	✓	✓	Health: Youth Topics		✓	✓
The Miracle of Birth	51	✓	✓	Health: Youth Topics		✓	✓
More Perfect Union Series	101	✓		Social Science: History		✓	✓
The Mount St. Helens Volcano: Fire & Life	77	✓		Science: Earth		✓	✓
Mozart: Symphony No. 40/Symphony No. 28	69			Music		✓	✓
My Old Man/Discussion of My Old Man	56	✓		Language Arts: Literature		✓	✓
NBA Game Plan (3)	18	✓		Career Guidance		✓	✓
On Dry Land: The Desert Biome	77	✓	✓	Science: Earth		✓	✓
One for My Baby	49	✓	✓	Health: Substance Aware		✓	✓
Passport to Your Future	18			Career Guidance		✓	✓
Pathways to Careers (2)	18	✓		Career Guidance		✓	✓
Perspectives in Science	81	✓		Science: Interdisciplinary		✓	✓
Perspectives in Science: Toxic Waste, Wate, ... (3)	81	✓		Science: Interdisciplinary		✓	✓
Physics at Work	93	✓	✓	Science: Physical		✓	✓
Physics of Sports	93	✓		Science: Physical		✓	✓
Physiology Series (3)	89	✓		Science: Life Science		✓	✓
Picasso	10			Art		✓	✓

7-8 and 9-12 Titles (continued)

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
Placido Domingo: Live from Miami	70			Music		✓	✓
Planet Earth: The Blue Planet	78	✓	✓	Science: Earth		✓	✓
Planet Earth: The Force Within	78	✓	✓	Science: Earth		✓	✓
Planet Earth: The Solar Sea	73	✓	✓	Science: Air & Space		✓	✓
Plate Tectonics	78			Science: Earth		✓	✓
Poisonous Plants/Poisoning by Accident	52	✓		Health: Youth Topics		✓	✓
Powers of the US Government (3)	105	✓	✓	Social Science: Pol Sci		✓	✓
Problem Solving in Science	81	✓	✓	Science: Interdisciplinary		✓	✓
Quebec City: Gateway to a Continent	107			Social Science: Social St		✓	✓
Real Men Don't Bleed	37	✓		Health: Children at Risk		✓	✓
Rebecca	57			Language Arts: Literature		✓	✓
Regulating Body Temperature/Digestive System	90	✓		Science: Life Science		✓	✓
Reproduction in Organisms	90	✓		Science: Life Science		✓	✓
Respiratory System/Endocrine System	90	✓		Science: Life Science		✓	✓
Resume/Job Application	18			Career Guidance		✓	✓
Retratos de Supervivencia	29			Foreign Language		✓	✓
Risk-Taking and You	37	✓	✓	Health: Children at Risk		✓	✓
Road to War (8)	102	✓		Social Science: History		✓	✓
A Rose for Emily	57	✓		Language Arts: Literature		✓	✓
The Scientific Method	82	✓		Science: Interdisciplinary		✓	✓
Secondhand Smoke	49	✓	✓	Health: Substance Aware		✓	✓
Segunda Enseñanza (2)	29			Foreign Language		✓	✓
Self Esteem Success	37			Health: Children at Risk		✓	✓
Self Esteem: Feeling Good About Yourself	37	✓	✓	Health: Children at Risk		✓	✓
Set on Freedom:Am. Civil Rights Movement	102	✓	✓	Social Science: History		✓	✓
Setting Career Goals the Video Way	18	✓		Career Guidance		✓	✓
South America Today (7)	107	✓		Social Science: Social Studies		✓	✓
Spain (2)	107	✓	✓	Social Science: Social Studies		✓	✓
Spanish Festival	70			Music		✓	✓
Spike & Mike's Festival of Animation	11			Art		✓	✓
Split Cherry Tree	58	✓		Language Arts: Literature		✓	✓
Stress: Learning To Handle It	37	✓		Health: Children at Risk		✓	✓
STS Science Forums, Vol I and II (2)	80	✓		Science: Environmental		✓	✓
STV: Human Body Series (3)	90	✓		Science: Life Science		✓	✓
Targets	49	✓		Health: Substance Aware		✓	✓
Tchaikovsky: Piano Concerto No. 1	70			Music		✓	✓
Technology Laserdiscs	118	✓		Training: Trade & Industry		✓	✓
Teen Contraception	38	✓		Health: Children at Risk		✓	✓
Teen Violence	38	✓		Health: Children at Risk		✓	✓
Teenage Sexuality	52	✓	✓	Health: Youth Topics		✓	✓
Telerrevista	29			Foreign Language		✓	✓
Theatre of Imagination: Radio Stories by Welles	20			Classic and Contemp Film		✓	✓
Thornton Wilder's Our Town	58			Language Arts: Literature		✓	✓
The Three Penny Opera	20			Classic and Contemp Film		✓	✓
The Three Sopranos	70			Music		✓	✓
TIP-AAIDS	38			Health: Children at Risk		✓	✓
TIP-DART	50			Health: Substance Aware		✓	✓
TLTG Physical Science	94			Science: Physical		✓	✓
Understanding Spoken Japanese	29		✓	Foreign Language		✓	✓
Verdi's Rigoletto at Verona	70			Music		✓	✓
Very Basic Economics	107	✓		Social Science: Social Stu		✓	✓
Viruses: What They Are and How They Work ...	91	✓		Science: Life Science		✓	✓
The Visitor	54	✓		Language Arts		✓	✓
Visual Pathfinders (2)	11			Art		✓	✓
Vocations I-U.S.A.	18			Career Guidance		✓	✓
Vocations II	18			Career Guidance		✓	✓

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
7-8 and 9-12 Titles (continued)							
A Walk in the Sun	20			Classic and Contemp Film		✓	✓
The Way of Life Series (6)	107	✓	✓	Social Science: Social St		✓	✓
We the Living	20			Classic and Contemp Film		✓	✓
What is Short Story?/The Necklace	58	✓		Language Arts: Literature		✓	✓
When Romance Turns to Rape	38	✓		Health: Children at Risk		✓	✓
When Your Unborn Child is on Drugs, Alcohol, ...	50	✓		Health: Substance Aware		✓	✓
Why Follow the Rules?	38	✓		Health: Children at Risk		✓	✓
Why Stay in School?	38	✓		Health: Children at Risk		✓	✓
William Tell	70			Music		✓	✓
With Malice Towards None: Lincoln's 2nd Addr	104	✓		Social Science: History		✓	✓
Work of the Heart/Muscles: Structure &Function	91	✓		Science: Life Science		✓	✓
Working With People	18			Career Guidance		✓	✓
Your Resume: A Self-Portrait	19	✓		Career Guidance		✓	✓
9-12 Titles							
8 1/2	19			Classic and Contemp Film			✓
2001: A Space Odyssey	19			Classic and Contemp Film			✓
AC Electronics (11)	25	✓		Electronics			✓
Adriana Lecouvreur	67			Music			✓
Adventures in Space: Journey to the Moon	72	✓		Science: Air & Space			✓
AIDS: What Everyone Needs to Know	37	✓	✓	Health: Children at Risk			✓
Air Compressor Repair	114			Training:Trade&Industry			✓
American Foreign Policy: Eisenhower/Kennedy	98	✓		Social Science: History			✓
American Foreign Policy: FDR/Truman	98	✓		Social Science: History			✓
American Government: Houghton Mifflin ...	98	✓		Social Science: History			✓
An American Portfolio	99	✓		Social Science: History			✓
Anatomy and Physiology	82	✓		Science: Life Science			✓
Andrew Wyeth: The Helga Pictures	8			Art			✓
Applied Industrial Mathematics (8)	65			Mathematics			✓
Applied Mathematics (9)	65			Mathematics			✓
Are You Really Listening?	12	✓		Business			✓
Art of the Western World (10)	8		✓	Art			✓
Art or Forgery? Strange Case-Han Van Meegeren	8			Art			✓
The Artful Journey Series (2)	8			Art			✓
Ask Any Dummy-Seat Belts Make Sense!	110	✓		Training: Drivers			✓
At Middle Age	26			Foreign Language			✓
Atoms and Molecules	92	✓		Science: Physical			✓
Atoms to Anatomy: A Multimedia View	83	✓		Science: Life Science			✓
Attila	67			Music			✓
Attributes for Successful Employability (4)	17	✓		Career Guidance			✓
Autour de Paris	26			Foreign Language			✓
Bachdisc	67			Music			✓
Balance Sheet	12			Business			✓
Basic AC Circuits (11)	25	✓		Electronics			✓
Basic Electricity and DC Circuits (11)	25	✓		Electronics			✓
Be Prepared for the Enhanced A.C.T.	17	✓		Career Guidance			✓
Bearings (2)	114			Training:Trade&Industry			✓
Bill Viola: I Do Not Know What It Is I Am Like	8			Art			✓
Bill Viola: The Passing	9			Art			✓
Bill Viola: Selected Works	9			Art			✓
The Birth Disc	31			Health: Care			✓
Blade Runner	19			Classic and Contemp Film			✓
Un Bon Départ	27			Foreign Language			✓
Boundary Detection and Convection Initiation	76			Science: Earth			✓
The Brain Teaching Modules	105	✓		Social Science: Psychology			✓

9-12 Titles (continued)

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
Les Bretons chez eux	27			Foreign Language			✓
BSCS Classic Inquiries	83	✓		Science: Life Science			✓
Business Disc: How to Start &Run a Small Business	12			Business			✓
Can Polar Bears Tread Water? (Changing Climate)	79	✓		Science: Environmental			✓
Carmen McRae Live	68			Music			✓
Cash Flow Planning Interactive Videodisc	13			Business			✓
Cell Biology (2)	84	✓		Science: Life Science			✓
Cell Biology: Motion and Function of Living Cell	84	✓	✓	Science: Life Science			✓
Chemistry at Work	74	✓	✓	Science: Chemistry			✓
Chemistry in Motion	74	✓		Science: Chemistry			✓
The Chemistry of Soap	74	✓		Science: Chemistry			✓
Choices and Decisions: Taking Charge-Your Life	13			Business			✓
Christmas at Ripon Cathedral	68			Music			✓
Citizen Kane	19			Classic and Contemp Film			✓
College U.S.A.	18			Career Guidance			✓
Comprehensive Chemistry Curriculum	74			Science: Chemistry			✓
ConFINGERation	60			Language Arts: Skills			✓
Conic Sections	65	✓		Mathematics			✓
Constructing and Using Speaking Outlines	60			Language Arts: Skills			✓
Coping with Speech Fright	60			Language Arts: Skills			✓
Cosi Fan Tutte	68			Music			✓
Cosmetology - SAPD Perm Design	115	✓		Training:Trade&Industry			✓
Cosmetology Science Module	115	✓		Training:Trade&Industry			✓
The Creation of the Universe	72			Science: Air & Space			✓
Critical Thinking: Supporting Your Ideas	60			Language Arts: Skills			✓
D'apres Maria	27			Foreign Language			✓
David Carradine's Kung Fu &Tai Chi Workouts	70			Physical Education			✓
DC Electronics (13)	26	✓		Electronics			✓
Dealing with the Upset Customer	13			Business			✓
Defensive Driving Tactics	110	✓		Training: Drivers			✓
Descubra España	27	✓		Foreign Language			✓
Designer Drugs and Human Physiology (2)	49	✓		Health: Substance Aware			✓
Destinos: An Introduction to Spanish (2)	27	✓		Foreign Language			✓
Deutschlandspiegel: PICS Platte I & II	27			Foreign Language			✓
Developing Key Ideas: The Four S's	60			Language Arts: Skills			✓
Developmental Biology (4)	84	✓		Science: Life Science			✓
Die Dame aus Amsterdam	27			Foreign Language			✓
Diffusion and Phase Changes of Matter	74	✓		Science: Chemistry			✓
Digital Electronic Theory (4)	26			Electronics			✓
Digital Electronics (15)	26	✓		Electronics			✓
¡DIME! Videodisc Program: Level I/Level II (2)	27	✓		Foreign Language			✓
Discovering French Videodisc , Level I/Level II	27	✓		Foreign Language			✓
Doing Chemistry	74			Science: Chemistry			✓
Doors of Time: Prehispanic Art	9	✓		Art			✓
Dream Machine: Visual/Dreams, Visions (3)	9			Art			✓
Drehort: Neubrandenburg	27			Foreign Language			✓
Drugs, Drinking, and Driving	49	✓	✓	Health: Substance Aware			✓
DUII-The Price Is Too High	49	✓		Health: Substance Aware			✓
Eadweard Muybridge: Motion Studies	9			Art			✓
Eagle and the Bear: Dateline—(11)	105	✓		Social Science: Pol Sci			✓
Ears and Hearing/Eyes and Seeing	84	✓		Science: Life Science			✓
Effective Business Writing	13			Business			✓
Effective Intro & Conclusions in Public Speaking	60			Language Arts: Skills			✓
Electrical Safety	111			Training:Industrial Safety			✓
Electrical/Electronic Theory (7)	26			Electronics			✓
Ellis ESL/EFL Version 1.15	60		✓	Language Arts: Skills			✓

9-12 Titles (continued)

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
Encyclopedia of Landscape Plants	85			Science: Life Science			✓
Enhancing Team Performance	13			Business			✓
Evolution: Inquiries - Biology & Earth Science (2)	86	✍		Science: Life Science			✓
Exploring Chemistry: Interactive Videodisc Lab	74		✓	Science: Chemistry			✓
Extratropical Cyclones, Vol 1: Cyclogenesis	76			Science: Earth			✓
Falling Bodies and Projectile Motion	92	✍		Science: Physical			✓
La Fanciulla del West	68			Music			✓
The Feast of the Gods	9	✍		Art			✓
Fetal Development: A Nine-Month Journey	50	✍		Health: Youth Topics			✓
Fighting for a Future	81	✍		Science: Interdisciplinary			✓
The First Emperor of China	100		✓	Social Science: History			✓
Focus on Health	32			Health: Care			✓
Force and Motion: Newton's 3 Laws	92	✍		Science: Physical			✓
The Forecast Process	76			Science: Earth			✓
Forsthaus Falkenau Pilot film: Ein neuer Anfang	27			Foreign Language			✓
Forsthaus Falkenau: Kochkuenste	28			Foreign Language			✓
France-Regions	28			Foreign Language			✓
Lo Frate 'Nnamorato	68			Music			✓
Frau und Beruf: Atypisches und Typisches	28			Foreign Language			✓
French in Action (2)	28	✍		Foreign Language			✓
Frida Kahlo	9	✍		Art			✓
Fundamental Study Skills-Mathematics	65			Mathematics			✓
Fundamental Study Skills-Reading	61			Language Arts: Skills			✓
Future Focus	18			Career Guidance			✓
Gadd Gang Live	68			Music			✓
Gardening at Home	86			Science: Life Science			✓
Genetics (4)	86	✍		Science: Life Science			✓
Georgia O'Keeffe: Portrait of an Artist	9	✍		Art			✓
The Graduate	19			Classic and Contemp Film			✓
The Great Quake of '89	77			Science: Earth			✓
Hallo bei logo 1/2/3/4 (4)	28			Foreign Language			✓
Hand Tools and Measuring Instruments (2)	116			Training:Trade&Industry			✓
Heart On a Chain: The Truth About Date Violence	37	✍		Health: Children at Risk			✓
Heavy Precipitation and Flash Flooding	77			Science: Earth			✓
Hidden Fortress	20			Classic and Contemp Film			✓
Highway Driving Tactics	110	✍		Training: Drivers			✓
Hockney at the Tate	9	✍		Art			✓
Huckleberry Finn	55	✍		Language Arts: Literature			✓
Human Biology	86			Science: Life Science			✓
Human Body (5)	86	✍		Science: Life Science			✓
Human Perception: Demonstrations & Effects	105			Social Science: Psychology			✓
Hydraulics Series (8)	116			Training:Trade&Industry			✓
I Am Joe's Heart	87	✍	✓	Science: Life Science			✓
I Vespri Siciliani	69			Music			✓
Imagine the Sound	69			Music			✓
In a Brilliant Light: van Gogh in Arles	9	✍		Art			✓
In a Wild Workshop: E. Brontë/Wuthering Heights	55	✍		Language Arts: Literature			✓
In the French Body	28			Foreign Language			✓
In the German Body	28			Foreign Language			✓
In the Land of Jim Crow (3)	106	✍		Social Science: Social St			✓
Income Statement Interactive Videodisc	14			Business			✓
Industrial Lubrication (2)	116			Training:Trade&Industry			✓
The Interactive Courtroom	64			Law			✓
Interactive Math Series (2)	66		✓	Mathematics			✓
Interactive Math: Probability and Statistics	66			Mathematics			✓
Interactive Mathematics	66			Mathematics			✓

9-12 Titles (continued)

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
Interactive Mathematics II	66			Mathematics			✓
JFK: The Age of the Kennedy Presidency	101	✍		Social Science: History			✓
Joe Cool Live	69			Music			✓
John Keats: His Life and Death	59	✍		Language Arts: Poetry			✓
Joseph Campbell & The Power of Myth	53			Language Arts			✓
Keith Jarrett-Last Solo	69			Music			✓
Laser Learning Series (12)	62	✍		Language Arts: Skills			✓
Lawrence of Arabia	20			Classic and Contemp Film			✓
Lee Ritenour & Friends from Coconut Grove (2)	69			Music			✓
Living Cells	88	✍		Science: Life Science			✓
Living Cells: Structure, Diversity, and Evolution	88	✍		Science: Life Science			✓
The Living Textbook-Cosmic Chemistry	75	✍	✓	Science: Chemistry			✓
The Living Textbook-Mechanisms-Stability & ...	88	✍	✓	Science: Life Science			✓
The Magnificent Ambersons	56			Language Arts: Literature			✓
The Mammalian Heart/Lungs	88	✍		Science: Life Science			✓
Marat Sade	20			Classic and Contemp Film			✓
La Maree et Ses Secrets	28	✍		Foreign Language			✓
Marijuana &the Mind: Addiction &Intoxication	49	✍		Health: Substance Aware			✓
Marine Meteorology, Vol 1: Waves; Vol 2: Wind	77			Science: Earth			✓
Masterpieces of Italian Art Series (5)	10			Art			✓
Masterpieces of the Hermitage, Vol 2	10			Art			✓
Math for Science	81			Science: Interdisciplinary			✓
Mechanical Seals	117			Training:Trade&Industry			✓
Mechanical Universe and Beyond (2)	93			Science: Physical			✓
MiniZiB 1	28			Foreign Language			✓
Mission Possible: Listening Skills	63			Language Arts: Skills			✓
Monterey Pop	69			Music			✓
Mozart: The Dissonant Quartet	69			Music			✓
Mozart: The Dissonant Quartet and CD-ROM	69			Music			✓
Musée d'Orsay	10		✓	Art			✓
New Ways of Seeing: Picasso, Braque & Cubist	10	✍		Art			✓
A Night at the Opera	20			Classic and Contemp Film			✓
The Ninety-Six: Cattle Ranch in Northern NV	107			Social Science: Social St			✓
Numerical Weather Prediction	77			Science: Earth			✓
Nutrition for Health: Food Pyramid/Wellness	34	✍		Health: Care			✓
Out of Bounds: Teenage Sexual Harassment/ ...	51	✍		Health: Youth Topics			✓
Outils a Main et Instruments de Mesure	118		✓	Training:Trade&Industry			✓
Paul Gauguin: The Savage Dream	10	✍		Art			✓
Persistence of Vision (3)	53			Language Arts			✓
Physics and Automobile Collisions	93			Science: Physical			✓
Physics of Flight	93	✍	✓	Science: Physical			✓
PICS Preview Disc	28		✓	Foreign Language			✓
Pioneer Great Artists Series (7)	10			Art			✓
Poetry in Motion	59			Language Arts: Poetry			✓
The Portrait	37	✍	✓	Health: Children at Risk			✓
Pour Tout Dire	29	✍		Foreign Language			✓
The Puzzle of the Tacoma Narrows Bridge Collapse	93			Science: Physical			✓
Pygmalion	56			Language Arts: Literature			✓
Rashomon	20		✓	Classic and Contemp Film			✓
Reading and Writing Enhancement (6)	63			Language Arts: Skills			✓
Redox	75			Science: Chemistry			✓
Refresher Defensive Driving	110			Training: Drivers			✓
Relationships	90			Science: Life Science			✓
Relax: with Dennis Weaver	35			Health: Care			✓
Rembrandt	10			Art			✓
The River	20			Classic and Contemp Film			✓

9-12 Titles (continued)

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
Ron Carter Live-Double Bass	70			Music			✓
The Rules of the Game	20			Classic and Contemp Film			✓
Safety on the Job Series (2)	114	✓	✓	Training: Industrial Safety			✓
Salamandre: Chateaux of the Loire	10		✓	Art			✓
Scenes from Great Expectations	57	✓		Language Arts: Literature			✓
The Selling Experience	16			Business			✓
Semiconductor Devices (11)	26	✓		Electronics			✓
The Seven Samurai	20			Classic and Contemp Film			✓
The Seventh Seal	20			Classic and Contemp Film			✓
Shakespeare in Conversation	57	✓		Language Arts: Literature			✓
Shakespeare in Rehearsal (5)	57	✓		Language Arts: Literature			✓
The Shifting Sands: A History of the Middle East	102	✓		Social Science: History			✓
Sketches Comiques	29			Foreign Language			✓
Smart Moves: Strategies For Safe Driving	110			Training: Drivers			✓
The Social Drinker and the Anti-Social Driver	111	✓		Training: Drivers			✓
Solar Activity	73	✓		Science: Air & Space			✓
Solo Tribute: Keith Jarrett	70			Music			✓
Somos	29		✓	Foreign Language			✓
Soviet Union (5)	107	✓		Social Science: Social St			✓
Sport-ABC: Skispringen	29			Foreign Language			✓
Standards II	70			Music			✓
Strange Friends	29			Foreign Language			✓
Supersense (6)	90	✓		Science: Life Science			✓
Survivors (7)	90	✓		Science: Life Science			✓
Symphony of Wonders	97			Social Science: Geography			✓
Take Control: Stay Healthy & Safe From HIV	36			Health: Care			✓
Talkin' About AIDS	38	✓		Health: Children at Risk			✓
Talking with Thoreau	58	✓		Language Arts: Literature			✓
Teaching Chemistry with Demonstrations	75	✓		Science: Chemistry			✓
TED2-Technology Entertainment Design Conf.	110			Teacher Training			✓
Télédouzaine	29			Foreign Language			✓
Télématin	29			Foreign Language			✓
Teleskop: Landeskunde im ZDF	29			Foreign Language			✓
Throne of Blood	20			Classic and Contemp Film			✓
TLTG Chemistry I	75			Science: Chemistry			✓
To New Horizons: Ephemeral Films 1931-1945	107			Social Science: Social St			✓
Tribute to John Coltrane	70			Music			✓
Trigonometric Functions 1: Solving Triangles	67	✓		Mathematics			✓
Naval Academy Archives & Museum Picturs	103			Social Science: History			✓
Underground Storage Tank Health and Safety	114			Training: Industrial Safety			✓
Understanding Earth	78	✓	✓	Science: Earth			✓
The United Nations: It's More Than You Think	107	✓		Social Science: Social St			✓
Vectors	67	✓		Mathematics			✓
The Versatile Organization	17			Business			✓
Vi-conte	29			Foreign Language			✓
Video Encyclopedia of Physics Demonstrations	94			Science: Physical			✓
Video Verite	30		✓	Foreign Language			✓
Vienna: The Spirit of a City	104		✓	Social Science: History			✓
Un Village se met a table	30			Foreign Language			✓
Visual History of Residential Interiors	11			Art			✓
Walt Whitman: Poet for a New Age	59	✓		Language Arts: Poetry			✓
Warhol	11	✓		Art			✓
What is Accrual Accounting &How does it Work?	17	✓		Business			✓
With Open Eyes: Images from Art Inst. of Chicago	11			Art			✓
Workplace Readiness: Self Management	18	✓		Career Guidance			✓
Workplace Skills (2)	19	✓		Career Guidance			✓

9-12 Titles (continued)

Title	Multimedia and Videodisc Compendium Page No.	Barcoded	Bilingual	Subject	Grade Level K-6	7-8	9-12
Workplace Readiness: Self Management	18	♿		Career Guidance			✓
Workplace Skills (2)	19	♿		Career Guidance			✓
Workshop on Doppler Radar Interpretation	78			Science: Earth			✓
World of Chemistry: Selected Demons (2)	75	♿		Science: Chemistry			✓
Writing for Work	64			Language Arts: Skills			✓
Yojimbo	20			Classic and Contemp Film			✓
Zarabanda: The Adventure of Ramiro	30	♿		Foreign Language			✓
Zulu	20			Classic and Contemp Film			✓

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About the Book

The development of this *K-12 Planning Guide for Videodisc Usage* was prompted by a perceived need among educators for reliable information on how to best implement videodisc systems in the schools. Further impetus came with the decision by the Texas State Board of Education that elementary science instruction could be based on either videodisc materials or standard textbooks. As Texas schools moved toward this new videodisc option, it was apparent that public school decision-makers would benefit from a reference that would help them plan the most effective ways to integrate videodisc systems into the curriculum. This book provides terminology and background information about the equipment that will help educators make more knowledgeable choices for their classrooms.

Revised edition.